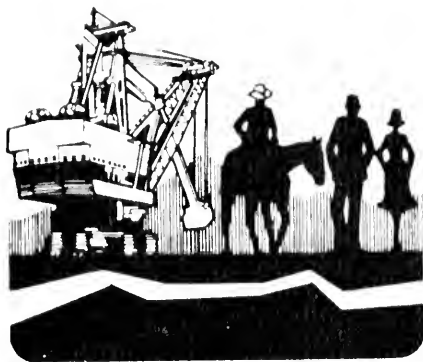


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# **Decker Area Mines Comprehensive Social Sciences Study**

**prepared for:**

Montana Department of State Lands  
and  
U.S. Office of Surface Mining

**prepared by:**

Mountain West Research-North, Inc.

**May 1983**

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COMPREHENSIVE SOCIAL SCIENCES STUDY

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May 1983





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## 1. INTRODUCTION



## 1. INTRODUCTION

### 1.1 Purpose

This report presents the socioeconomic impacts that would result from several proposed mines in the Decker area of southeastern Big Horn County, Montana. Because of the area's proximity to Wyoming and the major population center of Sheridan, this study forecasts impacts both in Big Horn County, Montana, and Sheridan County, Wyoming.

Table 1.1-1 summarizes the aspects of the proposed mines that would influence the nature and intensity of their socioeconomic impacts. In this report, these projects have been combined into five different scenarios. The baseline scenario does not include any of the proposed mines, but does include the currently operating Absaloka, Spring Creek, and Decker mines. The KME scenario includes these baseline mines and the proposed KME (Wolf Mountain) Mine. The Consol scenario consists of two subscenarios. The Consol Level 1 scenario includes the Consol (CX Ranch) Level 1 Mine and the baseline mines. The Consol Level 2 scenario is identical to the Consol Level 1 scenario through 1996 but then assumes that the Consol Mine would be expanded and operated through 2015. The Youngs Creek scenario includes the baseline mines and the proposed Youngs Creek (Shell) Mine. Finally, the cumulative scenario includes the KME, Consol Level 2, Youngs Creek, and Tanner Creek<sup>1</sup> mines in addition to the baseline mines. The cumulative scenario also assumes that a new, more direct road would be built from Lodge Grass to the Decker area. This road would slightly increase the number of Crow Indians working at the proposed mines under the cumulative scenario.

The study region includes Big Horn County in Montana and Sheridan County in Wyoming. This geographic definition is large enough to capture most of the direct and induced effects of energy development in the Decker area. The region is further disaggregated into twelve subcounty areas and over twenty jurisdictions.

This report analyzes eight categories of socioeconomic impacts: population and economy, social life and cultural diversity, housing, facilities/services, fiscal, transportation, outdoor recreation, and land use.

### 1.2 Organization

The report is organized into two parts. The first part is the main textual report. The second part consists of appendices for several of the impact topics.

With the exception of Chapter 2, which presents the methodology used to complete the study, and Chapter 3, which describes the existing socioeconomic environment in the study area, each chapter presents the potential impacts by subcounty area or jurisdiction. However, not all impact topics are covered in each subcounty area or jurisdiction discussion. As shown in Table 1.2-1, the forecasts for population and economy, housing, and social life and cultural diversity are described on the regional and county levels, for the Crow Indian Reservation and for each of the twelve subcounty areas. Facilities/services and fiscal impact forecasts are described on the regional, county, and city levels, and on the jurisdictional level for schools and other special types of facilities when appropriate. In addition, facilities/services and fiscal forecasts are presented for the Crow Reservation, and forecasts are made of state revenues

---

<sup>1</sup>The Tanner Creek Mine would be constructed adjacent to the Youngs Creek Mine in the southeast corner of the Crow Indian Reservation.

TABLE 1.1-1

Proposed Mines  
Key Socioeconomic Characteristics

Proposed Mine	Capacity (million tons per year)	Location	Construction Period		Operations Period	
			Years	Peak Employment	Years	Peak Employment
KME	3	0.3 miles east of Decker	1985-1987	292	1987-2006	265
Conso 1	8	2 miles west of Decker	1985-1987	213	1986-1998	604
Level 1	16	2 miles west of Decker	1985-1987 and 1997-1998	213	1986-2015	938
Youngs Creek	8	8 miles west of Decker on Crow Indian Reservation	1986-1989	325	1988-2009	300
Tanner Creek	10	8 miles west of Decker on Crow Indian Reservation	1996-1997	275	1997-2015	383

Sources: Robert A. Gjere, Environmental Coordinator, Kiewit Mining and Engineering Co., personal communication, November, 1982; Paul D. Gorder, Senior Project Engineer, Consolidation Coal Company, personal communication, November, 1982; Department of the Interior, Bureau of Indian Affairs, Draft Environmental Impact Statement, Crow/Shell Coal Lease, Crow Indian Reservation, Montana, February 1981.



TABLE 1.2-1

Report Organization by Impact Topic  
(Area or Jurisdiction included under Chapter Headings)

Chapter Heading	Population and Economy, Housing, Social Life and Cultural Diversity	Facilities and Services	Fiscal	Transportation Land Use
Regional Overview	Study Region		State, Federal Royalties	Outdoor Recreation
Big Horn County	Big Horn County Hardin and Hardin Area Decker Area	<u>Big Horn County</u> General Government Engineering and Planning Sheriff Fire Hospital Human and Health Services Public Health Library Parks and Recreation Solid Waste Education <u>Hardin</u> General Government Engineering and Public Works Police Fire	Big Horn County City of Hardin School Districts	Study Region, Big Horn County, Sheridan County
Crow Reservation and Communities	Crow Reservation Crow Agency and Northeast Area Lodge Grass and Southeast Area Central Area West Area	<u>Crow Reservation</u> General Government Police Fire Hospital and Health Services Social Services Mental Health Community Health Recreation	Crow Reservation Lodge Grass	

TABLE 1.2-1 (cont.)

Report Organization by Impact Topic  
(Area or Jurisdiction included under Chapter Headings)

Chapter Heading	Population and Economy, Housing, Social Life and Cultural Diversity	Facilities and Services	Fiscal	Transportation Land Use Outdoor Recreation
Crow Reservation and Communities (cont.)		<u>Crow Agency</u>		
		Fire		
		Water		
		Sewer		
		<u>Lodge Grass</u>		
		General Government		
		Police		
		Fire		
		Courts		
		Hospital and Health Services		
		Social Services		
		Mental Health		
		Community Health		
		<u>St. Xavier</u>		
		Fire		
		Sewer		
		Water		
		<u>Ft. Smith</u>		
		Fire		
		Water		
		Sewer		

TABLE 1.2-1 (cont.)

Report Organization by Impact Topic  
(Area or Jurisdiction included under Chapter Headings)

Chapter Heading	Population and Economy, Housing, Social Life and Cultural Diversity	Facilities and Services	Fiscal	Transportation Land Use Outdoor Recreation
Crow Reservation and Communities (cont.)		Pryor Fire Water Sewer		
Northern Cheyenne Reservation	Northern Cheyenne Reservation			
Sheridan County	Sheridan County Sheridan and Sheridan Area Ranchester, Dayton, and Area Rest of Sheridan County	Sheridan County General Government Engineering and Planning Sheriff Fire Hospital Human Services Library Recreation and Parks Senior Citizens Education City of Sheridan General Government Engineering, Public Works, Sanitation, and Cemetery Police Fire Parks and Recreation	Sheridan County City of Sheridan Ranchester Dayton	

TABLE 1.2-1 (cont.)

Report Organization by Impact Topic  
(Area or Jurisdiction included under Chapter Headings)

Chapter Heading	Population and Economy, Housing, Social Life and Cultural Diversity	Facilities and Services	Fiscal	Transportation Land Use Outdoor Recreation
Sheridan County (cont.)				
		<u>Ranchester</u>		
		General Government		
		Water		
		Sewer		
		Fire		
		Library		
		<u>Dayton</u>		
		General Government		
		Water		
		Sewer		
		Fire		
		Solid Waste		

Source: Mountain West Research-North, Inc., 1983.

generated by the projects. Finally, transportation, land use, and outdoor recreation forecasts for the study region and for Big Horn and Sheridan counties are presented under the regional overview in each chapter.

The textual report consists of nine chapters. Chapter 2 presents the overall methodology. First, the study region definition (and the reasons for that definition) is presented. Second, the methodology used to define socioeconomic impacts is discussed. Finally, Chapter 2 presents specific methodologies for each socioeconomic topic addressed in this report.

Chapter 3 discusses the existing environment within the study region. Chapter 4 presents a forecast of future conditions in the study area as they would occur with none of the proposed mines. This is the baseline forecast against which all with-project scenarios are compared to determine project-related impacts.

Chapter 5 presents the most important socioeconomic characteristics of the proposed mines and associated railroads. These characteristics include their locations, employment schedules, labor composition, amount and spatial distribution of local purchases, and residential distributions of their work forces.

Chapter 6 presents the population and economic forecasts for the KME, Consol, Youngs Creek, and cumulative scenarios. The chapter highlights those subcounty areas that would experience the most significant population impacts.

Chapters 7, 8, 9, and 10 present impact forecasts for the KME, Consol, Youngs Creek, and cumulative scenarios, respectively. Within each chapter, impacts are presented by topic and geographical area or jurisdiction. Finally, each chapter also presents a discussion of mechanisms that could be used to mitigate or enhance the effects of the proposed mines.



## 2. METHODOLOGY





## 2. METHODOLOGY

This chapter presents the methods used to identify and analyze the impacts of the proposed mine developments on the socioeconomic resources of the study region. The topics addressed include the definition of the study region, the definition and identification of impacts for each principal resource area, and the methods applied in analyzing each resource area.

### 2.1 Study Region Definition

In order to focus the analysis on an appropriate geographic area, it is necessary to systematically analyze the processes by which impacts from the proposed actions would be spatially distributed and the key factors that influence this distribution. The analysis of the relevant processes and factors together with its conclusions for primary and secondary areas of site influence are treated in this section. In defining the study region, the analysis relates the locations of future baseline economic activities and the proposed actions to subcounty area definitions, commuting patterns and characteristics, and economic trading relationships.

#### 2.1.1 Project Locations

Figure 2.1.1-1 shows the location of key study region features, subcounty areas, and the proposed actions. As indicated on the figure, the Youngs Creek Mine would be located in the southeast corner of the Crow Reservation, near the Montana-Wyoming border. The Tanner Creek extension of the Youngs Creek Mine would be located in the same area. The Consol Mine (Level 1 and Level 2) would be located on the CX Ranch property approximately two miles west of Decker, Montana and twenty-two miles north of Sheridan, Wyoming. Finally, Kiewit KME (Wolf Mountain) Mine would also be located about twenty-two miles north of Sheridan, but less than a mile east of Decker, and about a mile southwest of the existing West Decker Mine. All three mine sites have a northwest-southwest orientation.

#### 2.1.2 Subcounty Area Definitions

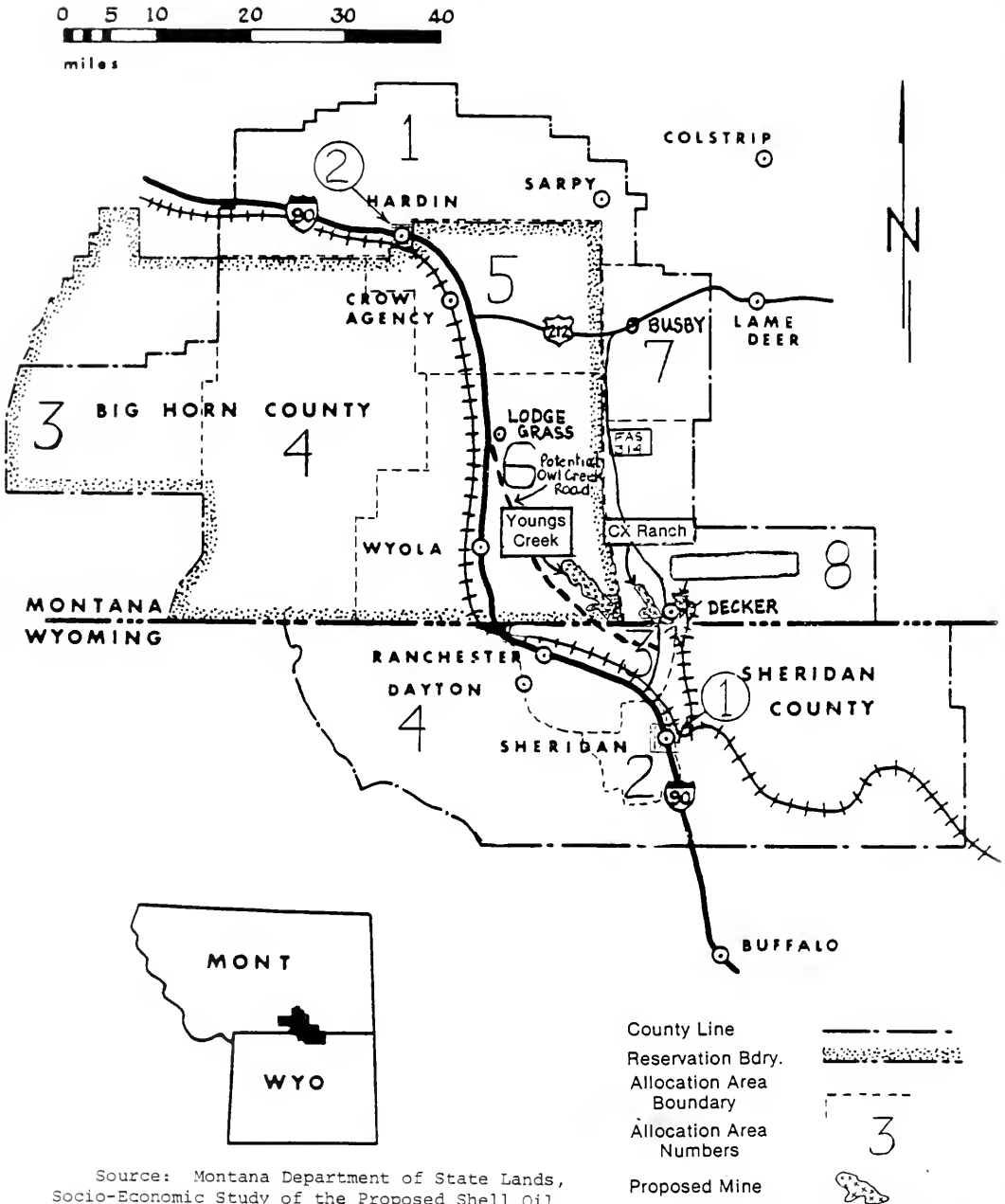
Based upon the locations of the proposed actions and considering the composition of local labor market areas, commuting patterns, and trading relationships among communities, subcounty areas have been geographically defined to correspond, as closely as possible, to governmental and planning jurisdictions that could be affected by the proposed actions. Table 2.1.2-1 presents the 1980 census population of the subcounty areas and the corresponding 1980 census area definitions included in the subcounty areas.

#### 2.1.3 Commuting Patterns

Potential commuting patterns between the proposed mine sites and worker residence fall into two categories: construction period commuting and operations period commuting. A two-tiered methodology was used to establish the most likely commuting patterns. First, a worker survey and discussions with local company officials were used to allocate the present mining employment by community of residence. Second, the survey results were then reviewed by local government officials, taking housing conditions, service capacity, and growth areas into account. Based on this process, the commuting pattern shown in Table 2.1.3-1 served to further define the subcounty areas.

FIGURE 2.1.1-1

Study Area Map



Source: Montana Department of State Lands,  
Socio-Economic Study of the Proposed Shell Oil  
Company Pearl Mine, Helena, Montana, 1978. 2-2

TABLE 2.1.2-1

Subcounty Area Definitions and Populations  
Decker Area Mines Study Region  
1980

Geographic Area	Subcounty Area File Number	1980 Population
Big Horn County		11,096
Big Horn North Area <sup>a</sup>	1	949
Hardin City	2	3,300
Crow Reservation West <sup>b</sup>	3	472
Crow Reservation Central <sup>c</sup>	4	937
Crow Reservation Northeast <sup>d</sup>	5	2,100
Crow Reservation Southeast <sup>e</sup>	6	2,136
Northern Cheyenne Reservation <sup>f</sup>	7	1,013
Decker Area <sup>g</sup>	8	189
Sheridan County		25,048
Sheridan City <sup>h</sup>	1	15,146
Greater Sheridan Area <sup>i</sup>	2	5,017
Ranchester Dayton Area <sup>j</sup>	3	1,842
Rest of County <sup>k</sup>	4	3,043

Source: 1980 Census of Population for Big Horn and Sheridan counties. Numbers are unadjusted for underenumeration of Crow Indians. See sections 2.3.1.4 and 3.1.

<sup>a</sup>Big Horn North Area includes Enumeration District 3025, ED 3026, ED 3027A, ED 3028, and ED 3029.

<sup>b</sup>Crow Reservation West includes ED 3033 and ED 3034.

<sup>c</sup>Crow Reservation Central includes ED 3031, ED 3032, ED 3035, ED 3036, ED 3037, ED 3043, ED 3044, and ED 3045.

<sup>d</sup>Crow Reservation Northeast includes ED 3030, ED 3038, ED 3034, and BNA 9903.

<sup>e</sup>Crow Reservation Southeast includes ED 3040, ED 3041, ED 3042, ED 3046, BNA 9902, and BNA 9904.

<sup>f</sup>Northern Cheyenne Reservation includes ED 3047, ED 3048, ED 3049, and ED 3050.

<sup>g</sup>Decker Area includes ED 3051 and ED 3052.

<sup>h</sup>Sheridan City includes Block Numbered Area 9901, BNA 9902, BNA 9903, BNA 9904, and BNA 9905.

TABLE 2.1.2-1 (cont.)

Subcounty Area Definitions and Populations  
Decker Area Mines Study Region  
1980

<sup>i</sup>Greater Sheridan Area includes ED 1529, ED 1530, ED 1531, ED 1532A, ED 1534, ED 1535, ED 1536, ED 1538, ED 1539, ED 1552, ED 1553, ED 1554, ED 1555, ED 1556, ED 1557, ED 1558, ED 1560, ED 1561, BNA 99904, BNA 99905, and BNA 9907.

<sup>j</sup>Ranchester-Dayton Area includes ED 1543, ED 1544, ED 1548A, ED 1549, and BNA 9906.

<sup>k</sup>Rest of County includes ED 1525, ED 1526, ED 1527, ED 1528A, ED 1540, ED 1541, ED 1542, ED 1545, ED 1546, ED 1547, ED 1550, ED 1551, ED 1559, ED 1562, ED 1563, ED 1564, and BNA 9908.

TABLE 2.1.3-1

Commuting Patterns Among Subcounty Areas and Project Locations  
Decker Area Mines Study Area

Area	Project													
	Absaloka		Spring Creek		Decker		Big Horn		Colstrip		Youngs Creek		Conso	
	Oper	Con	Oper	Con	Oper	Con	Oper	Con	Oper	Con	Oper	Con	Oper	Con
Big Horn County														
Big Horn North Area	0								0	0	X		X	
Hardin City	0													X
Crow Reservation West														
Crow Reservation Central	0										X	X	X	X
Crow Reservation Northeast	0		0		0		0				X	X	X	X
Crow Reservation Southeast			0		0		0				X	X	X	X
Northern Cheyenne Reservation	0		0		0		0		0	0	X	X	X	X
Decker Area			0		0		0				X	X	X	X
Sheridan County														
Sheridan City			0		0		0				X	X	X	X
Greater Sheridan Area			0		0		0				X	X	X	X
Ranchester-Dayton Area					0		0				X	X	X	X
Rest of County					0		0							

Source: Mountain West Research-North, Inc., 1982.

Note: Con = construction; Oper = operations; 0 = existing patterns; X = projected patterns.

Certain subcounty areas were defined on the basis of local planning jurisdictions. In Big Horn County, the Crow Reservation and the Northern Cheyenne Reservation were separated from the rest of Big Horn County and incorporated the planning jurisdictions utilized by the tribes.

Within Sheridan County, the greater Sheridan area includes areas outside the city limits of Sheridan where population growth has recently taken place and where future growth is anticipated. The area designated as rest of county encompasses the larger, remaining portion of Sheridan County, from which commuting related to the proposed actions is expected to be insignificant.

Although all proposed actions are located near Decker, during their construction periods, potential commuting to communities as distant as Billings exists. Operations period commuting is expected to be concentrated in the local area around the mines, in the Ranchester-Dayton area, and in Sheridan, Wyoming. In addition to direct employment on the several projects, Sheridan and Hardin would experience indirect employment effects due to project purchases and coal-related rail traffic.

#### 2.1.4 Trading Relationships

Purchasing patterns within the study region have influenced subcounty area definitions. The analysis of trading relationships is focused on purchases generated from the primary area of project influence, the Decker area in Big Horn County, Montana.

Purchases are made for a hierarchy of goods. First-order items (for example, groceries) can be purchased in a larger number of places than can more specialized goods. Within the study region, several places provide first-order goods: Hardin, Crow Agency, Lodge Grass, Wyola, Pryor, Busby, Ranchester, Dayton, and Sheridan. Hardin and Sheridan also provide more specialized (second-order) goods and services.

According to the results of a recent survey,<sup>1</sup> first order purchases from the general study area are made in several places. For that portion of the Northern Cheyenne Reservation within Big Horn County, over 50 percent of first-order purchases are made in Busby and Lame Deer. Forty percent are made equally in Ashland, Colstrip, Hardin, and Billings. Less than 1 percent are made in Miles City and Sheridan. Higher-order purchases from the primary area of project influence are made in fewer trade centers. Over 60 percent of major purchases from the Northern Cheyenne Reservation are made in Billings, with 19 percent made in Hardin, 5 percent in Forsyth, 4 percent in Lame Deer, and 3 percent in Miles City.

Key informant interviews provided additional information on intraregional trading relationships. Hardin is a second-order trade center, but has a very limited market area; consumers from northern Big Horn County tend to bypass Hardin for Billings. Southern Big Horn County residents tend to make major purchases in Sheridan. Additionally, some capital and operating purchases by the proposed mines and railroads can be supplied by Hardin and Sheridan businesses.

These trading patterns indicate that a substantial amount of income earned in the Decker study region leaks to Billings, Sheridan, and other centers. Within the study region, Hardin is likely to experience induced employment from both first- and second-order purchases. Sheridan will experience induced employment from both first and second-order purchases. Finally, Hardin and Sheridan will experience indirect employment from capital and operating purchases by the several projects.

#### 2.1.5 Areas of Site Influence

Based upon potential commuting patterns and existing trading relationships, the Decker study region can be clustered into the three distinct areas discussed below.

---

<sup>1</sup>The Northern Cheyenne Tribe conducted a household survey of their members in the spring of 1981.

- 1) Primary area of site influence. This area is most likely to experience the greatest impact from direct project employment. It includes eight subcounty areas with a high probability of commuting:
  - Crow Reservation Central
  - Crow Reservation Northeast
  - Crow Reservation Southeast
  - Northern Cheyenne Reservation
  - Decker Area
  - Sheridan City
  - Greater Sheridan Area
  - Ranchester-Dayton Area
- 2) Secondary area of site influence. This area is likely to be affected by temporary construction period direct employment and by indirect and induced employment from project-related earned income and purchases. It includes Hardin City as well as the primary areas noted above.
- 3) Area of no site influence. A portion of each county in the study region is likely to experience little or no effects from the proposed actions. These include the Big Horn County north area, Crow Reservation west, and the rest of county in Sheridan County. In addition, indirect and induced employment effects would be experienced in Billings. However, these would not result in potentially significant socioeconomic impacts. Thus, Yellowstone County is not included in the study region.

## 2.2 Impact Definition and Identification

The Decker Area Mines study region contains a large number of subcounty areas and governmental jurisdictions, not all of which would experience significant impacts due to the proposed actions under the site-specific and cumulative scenarios. In order to avoid presenting redundant information, for each proposed action scenario, jurisdictions were screened to identify those that would be likely to experience significant impacts. Within the main body of the impact assessment text (chapters 7-10), only these jurisdictions are discussed. Section 2.2 briefly discusses the identification and screening process used for the following resource topics:

- 1) Economic/demographic
- 2) Social
- 3) Housing
- 4) Facilities/services
- 5) Fiscal
- 6) Transportation
- 7) Outdoor recreation
- 8) Land use

### 2.2.1 Economic/Demographic

Forecasts of population, employment, and income changes due to the proposed actions were prepared for each subcounty area and jurisdiction across all scenarios. Since population and employment effects are the principal causal agents of impacts on social, housing, facilities/services, fiscal, and other socioeconomic resources, their levels for each subcounty area and jurisdiction were examined. Those in which little effect was forecast were dropped from the impact evaluation process.

### 2.2.2 Social

Identifying and defining social impact is particularly difficult given the nonnumeric nature of many social change measures. In this study, social impact is defined as an anticipated change in community

social organization that alters the character or structure of a community or the lifestyle of any social groups more radically than by merely sustaining already existing trends.

In addition, a measurable alteration of any group's or community's well-being (see Section 2.3.2.2) by the proposed action is considered an impact. This would include the forecast of significant controversy.

#### 2.2.3 Housing

Based upon predicted demographic change, housing demand forecasts were prepared for each subcounty area and each scenario. These demand forecasts were compared with supply forecasts for Big Horn and Sheridan counties and for Indian housing on the Crow Reservation. An excess of demand over supply was used as an indicator of potential adverse impact.

#### 2.2.4 Facilities and Services

The facilities and services sections present information about requirements of personnel, capital facilities, and equipment for jurisdictions in the Decker project study area. The jurisdictions represent geographic subdivisions or allocation areas consistent with the economic and demographic analysis. An initial review of economic and demographic information (particularly population levels and demographic trends) determined that the set of jurisdictions warranting examination for facilities/services in Montana included: the regional areas of Big Horn County and the Crow Indian Reservation; the cities of Hardin and Lodge Grass; the unincorporated places of Wyola, Decker, St. Xavier, Ft. Smith, and Pryor; and defined areas of service for individual schools within the three public high school and seven public elementary school districts of Big Horn County. The jurisdictions examined in Wyoming include: Sheridan County, School District No. 1, School District No. 2, City of Sheridan, Ranchester, and Dayton.

Each jurisdiction was reviewed to identify existing facilities and services. Below is a composite list of the types of facilities and services that currently exist (1982) in the jurisdictions of the study area:

- 1) General government
- 2) Police
- 3) Fire
- 4) Hospital and health services
- 5) Social services
- 6) Mental health
- 7) Community health
- 8) Shop
- 9) Streets
- 10) Engineering
- 11) Water
- 12) Sewer
- 13) Recreation
- 14) Education

The information about facilities and services is presented for the existing environment and each of the scenarios that are forecast for the study. In the analysis of effects on the Crow Reservation and schools in Big Horn County, annual requirements are evaluated for existing (1982), mid-term (1995), and long-term (2015) periods. The mid-term and long-term projections represent the cumulative effects of annual requirements through 1995 and subsequent five-year periods through 2015. In Sheridan County, where population effects are larger, the projections are made on an annual basis through 1995 and on a five-year basis through 2015.



The jurisdictions that have been defined and selected for presentation in this report have primary importance for the provision of full-time facilities and services in the study region. Other auxiliary facilities and services, such as those that are part-time, financed with secondary, nonlocal sources of revenues, or which utilize private sector resources, are generally excluded from the study. The total effects of future levels of demand for facilities and services in the specific jurisdictions are presented in the fiscal sections of this report. The fiscal information presents net balances for expenditures and revenues in the jurisdictions that have formal, local budgetary procedures.

Not all facilities and services are reviewed equally in the impact analysis. Only the facilities and services likely to be significantly affected by growth or decline associated with the projects are discussed.

#### 2.2.5 Fiscal

Revenues and expenditures for each scenario were projected for impacted jurisdictions by facility/service functions. Revenues accruing to the state and federal governments as a result of the proposed mining developments were also projected. Where negative net fiscal balances are forecast due to the proposed actions, an adverse impact is defined. The significance of that impact depends upon the size and duration of the imbalance as well as the ability of the affected jurisdiction to implement corrective actions.

#### 2.2.6 Transportation

Transportation impacts due to the proposed actions would occur via increased traffic on both rail and road transport modes. Impacts on air transportation would be negligible -- resulting primarily from increases in demand due to population growth induced by the proposed mines.

Rail traffic increases would be experienced primarily due to the shipment of coal from the proposed mines to out-of-state utilities. These shipments would be made on unit coal trains -- 100- to 110-car trains dedicated entirely to coal transport. Impacts due to this traffic would consist of increased accident hazards, traffic congestion, inconvenience at grade crossings, and nuisance effects such as noise (in towns or in special use areas), fires, and dust. The relatively low incidence of the last two makes their assessment problematic.

Increases in highway traffic would result from a combination of job-related trips and higher average daily traffic (ADT) due to population growth. The consequent impacts would be more accidents, traffic congestion, and inconvenience and more rapid deterioration of road surfaces. This last impact could also result from an increased volume of heavy vehicular traffic on particular road segments, such as trucks bringing mining equipment and materials to the mines. Finally, changes in the study area road network due to the development of one or more mines could produce beneficial and adverse impacts.

#### 2.2.7 Regional Recreation

Impacts to regional recreation were analyzed in terms of the effects of increased demand (recreation days) on the capacity of specific regional recreation sites. This approach avoids use of a given percentage increase in demand as a trigger to determine impacts regardless of the ability of the region's recreational resources to meet that demand. Both sustained demand and short-term, interim demand were analyzed in this way. Where a sustained demand (1) showed increases above the resource carrying capacity and (2) simultaneously exceeded the expressed capacity for management strategies to accommodate that level of

demand, an impact was identified. Where a short-term, interim demand (that is, peak weekends and holidays only) showed increases that met the criteria (1) and (2) above, these cases were noted and identified, but no impact was defined due to their temporary nature.

## 2.2.8 Land Use

Land use effects are defined as the incremental (above baseline level) acreage needs per land classification created by a project. Land use demand was forecast on an annual basis for urban residential, rural residential, and commercial land uses for each of the five mining scenarios (including cumulative). Although this information is of value to private and public land use planners, effects thus defined are not necessarily significant. Significant land use impacts are those acreage requirements which, when combined with baseline needs, exceed the land availability in a given classification.

## 2.3 Topical Area Methodologies

The technical procedures used in the socioeconomic assessment are described in this section. The discussion is broken down by major resource topic, similar to the components addressed under Section 2.2, above.

### 2.3.1 Economic/Demographic Analysis

#### 2.3.1.1 Introduction

The objectives of the economic/demographic analysis are to establish a detailed information base on existing economic/demographic conditions in the study area, to develop a computerized forecasting model appropriate for the area, and to derive a set of forecasts that identify levels and locations of population growth in the area.

The methodology used to obtain information on existing conditions and to develop forecasts is grounded on economic base analysis. Theoretically, certain economic activities in a given region produce goods or services that are not consumed internally, but are exported. These exports bring wealth into the region and provide its economic base. Other economic activities within the region provide support services to its population and basic industries.

For each county in the Decker study region, an economic base analysis -- utilizing both standard secondary data and available survey data, as well as personal interviews with local key informants -- was performed. This analysis provided a description of the area economy and the sectors comprising it. As a result, basic employment by industry was identified. Certain activities -- in particular, the Decker area mines -- were the focus of more detailed analysis. The economic analyses provided the key information to derive baseline economic/demographic forecasts. To derive forecasts, the Mountain West forecasting model<sup>1</sup> was adapted to the study area. The balance of this section provides an overview of the model structure.

#### 2.3.1.2 Model Overview

The Planning and Assessment System is composed of three modules that are linked together in a data base management and simulation system. Each of the components is designed in a fashion that facilitates

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<sup>1</sup>Planning and Assessment System (PAS).

linkage to additional modules such as those for facilities/services or fiscal analyses. Figure 2.3.1.2-1 shows each of the three modules with their major functions and outputs.

The first module is the Basic Activity System (BAS). Basic economic activity is defined, within the structure of PAS, as that economic activity within the Decker project study region wholly determined by forces originating from outside the Decker project study region. This commonly includes activity associated with exported goods and services, but may also include tourist-related business and some government activity. Nonbasic (induced) activity is that economic activity determined by the level of economic activity within the general Decker project study region. In addition, when a county serves as a regional trade and service center, nonbasic employment in PAS includes employment that is due to personal income in the counties in the center's market area. Basic activity is the principal determinant of the economic and demographic activity in PAS. The BAS is a data base manager that provides a convenient method of tracing the critical assumptions underlying a given set of projections. The information stored for each project, or category of basic activity, includes the name and type of activity, annual employment and earnings, place of residence of the work force, and local purchases of materials and supplies. The information can be retrieved or changed for any element of the data base through interactions between the user and the system. The data base that is created in BAS is then used as input into the projection modules of PAS.

The second operating module of PAS is the County Projection Module (CPM). It uses the information from the Basic Activity System along with other county-level economic and demographic data and produces projections at the county level. The outputs of the CPM describe the size and composition of the population, the components of population change, the level and sectoral composition of employment, and personal income by major component.

The third operating module of PAS is the Subcounty Allocation Module (SAM). The Subcounty Allocation Module has two components. The allocation area component allocates the county-level projections from the CPM to subcounty areas. These subcounty areas, called "allocation areas," are defined when PAS is first calibrated for a region. They are usually defined along municipality, census, or school district boundaries and exhaust the county area. The jurisdiction component allows population and housing to be projected for political entities within a county. The jurisdiction projections use a set of rules that define jurisdictions or jurisdiction segments as a fixed proportion of allocation areas.

### Basic Activity System

The Basic Activity System (BAS) is the module of PAS that stores the information about the basic activities within the region being analyzed. BAS was designed to organize and maintain information on the key assumptions related to basic activity within the region under analysis. Basic activity is an economic activity that brings new income into the region, thus stimulating new jobs and income in other sectors of the economy. It may be a single project, such as a power plant or a coal mine, or it may be the aggregation of several individual basic activities within a particular economic sector, such as basic agriculture or basic government. The motivation behind the development of BAS was the complexity of the planning problems faced by both public and private decision-makers, especially in those areas experiencing rapid growth as a result of energy development. The problems often center on the large number of activities and the inherent uncertainties associated with each. In such an environment, it is important that the precise assumptions about each activity be known and that the information system be easily updated or modified as new developments occur.

BAS is an information management system that is linked with the projection modules of PAS. Individual activities can be added or deleted from the activity file, and key information on each activity can be changed. The information stored for each activity can be divided into four components. These include the following:

- 1) Activity descriptors

FIGURE 2.3.1.2-1

The Three Operating Modules of the Planning and Assessment System (PAS)

BASIC ACTIVITY SYSTEM-BAS	COUNTY PROJECTION MODULE-CPM	SUBCOUNTY ALLOCATION MODULE-SAM
Purpose: data base manager for all basic activities.	Purpose: project county-level economy and demographic conditions for assumed set of basic activities.	Purpose: subcounty allocation of county-level economic/demographic projections.
Data stored for each activity include:	Outputs include:	Allocation Area Component
<ul style="list-style-type: none"> <li>- Name and Description of Activity</li> <li>- Activity Type</li> <li>- Time Period</li> <li>- Employment Levels by Year</li> <li>- Residential Allocation of the workforce</li> <li>- Average Earnings per Worker</li> <li>- School-age Population by Age</li> <li>- Local Purchases of Materials and Supplies</li> </ul>	<ul style="list-style-type: none"> <li>- Components of Population Change</li> <li>- Components of Employment-Related Migration</li> <li>- Components of Nonlocal Construction Work Force</li> <li>- Population by Age and Sex</li> <li>- Employment-Related Migration by Age and Sex</li> <li>- School-Age Population by Age</li> <li>- Deaths by Age and Sex</li> <li>- Births by Age of Mother</li> <li>- Nonlocal Population by Age and Sex</li> <li>- Total Employment by Sector</li> <li>- Basic Employment by Sector</li> <li>- Nonbasic Employment by Sector</li> <li>- Labor Income by Type</li> <li>- Personal Income by Component</li> </ul>	<ul style="list-style-type: none"> <li>- Components of Population Change</li> <li>- Components of Employment-Related Migration</li> <li>- Components of Nonlocal Construction Work Force</li> <li>- Population by Age and Sex</li> <li>- Employment-Related Migration by Age and Sex</li> <li>- Deaths by Age and Sex</li> <li>- Births by Age of Mother</li> <li>- Nonlocal Population by Age and Sex</li> <li>- Employment by Type</li> <li>- Labor Income by Type</li> <li>- Jurisdiction Component</li> </ul>
		Outputs include:
		<ul style="list-style-type: none"> <li>- Age-Sex Specific Population</li> <li>- Housing by Unit Type</li> </ul>

Source: Mountain West Research-North, Inc., 1982.

- 2) Employment and income
- 3) Composition and residential distribution of the work force
- 4) Local purchases of materials and services

Activity descriptors include the number of the activity, a short description of the activity, the activity type and its economic sector affiliation, and the duration of the activity. The second information component category contains the annual employment levels for each year of the activity as well as the average earnings per employee associated with it. The third is for the residential allocation of the work force for the activity. For major construction projects in a region, it is necessary to estimate what portion of the work force would come from outside the region and to specify where these workers would live.

The final information component is local purchases of materials and services within the Decker study region. If, for example, a company plans to buy \$1.0 million of building materials from local businesses, it is noted in this section of BAS. The sector distribution of the local purchases and the allocation of the purchases in each sector to specific PAS allocation areas is also included. Each of these four components of BAS plays an important role in the operation of PAS and is explained in detail in the following sections.

### County Projection Module

The County Projection Module (CPM) has three major submodels -- a demographic submodel, an economic submodel, and a labor market submodel. The demographic submodel keeps track of the population and demographic characteristics of the county. Using a cohort-survival process and county-specific information on the age/sex structure and the vital rates of the population, the demographic model computes the effect of mortality and births on the population. If applicable for the area, the demographic model also adjusts for nonemployment-related migration such as retirement migration. Information provided by BAS on the demographic characteristics of nonlocal workers that may locate in the area is also incorporated. The demographic model computes births and deaths for the year and the size of the survived population by age and sex. These estimates are used to produce the final population projection.

The economic submodel jointly determines total employment by economic sector and personal income by component based on the level of basic activity for the county. Basic activity is provided through the projects selected by the user from BAS. Nonbasic employment is determined through a set of coefficients that relate nonbasic employment in a sector to the level of personal income within the county and, for larger places, the level of personal income in the market area that is served by the county. Since personal income is affected by the level of nonbasic employment, and, since nonbasic employment is determined by personal income, the economic model solves for both simultaneously. Incorporation of the market-area concept and of the economic interaction among places is a critical feature of the submodel that makes it applicable to a multicounty region.

The outputs of the economic submodel include basic, nonbasic, and total employment by sector and personal income by source. Employment by sector and total employment are subsequently used in the labor market submodel.

The purpose of the labor market submodel is to evaluate the consistency between labor supply and labor demand. If these are not consistent, as defined by the user, then employment-related migration is assumed to occur until equilibrium is established. The locally available supply of labor is calculated by applying age-, sex-, and county-specific labor force participation rates to the resident population. Labor demand (number of persons, place of residence basis) is estimated by adjusting total employment (number of jobs, place of residence basis) for multiple job-holding. If the supply of labor is in balance with the demand for labor, no further adjustments are made to the population, employment, or income projections at

the county level. However, if there is an imbalance in the supply of and demand for labor, in- or out-migration is assumed to occur until the imbalance is eliminated. The demographic and family characteristics of the migrants are assumed to depend on the economic sector in which the employment change has occurred. The output of the labor market model is labor force by age and sex, migration by age and sex, and the final population of the county by age and sex. Each of the three submodels of the CPM is explained in more detail in the following subsections.

County-level population, employment, and income projections for any set or subset of the basic activities contained in the BAS file can be produced. A total of fourteen tables can be produced:

- 1) Components of population change
- 2) Components of employment-related migration
- 3) Components of nonlocal construction work force
- 4) Population by age and sex
- 5) Employment-related migration by age and sex
- 6) School-age population by age
- 7) Deaths by age and sex
- 8) Births by age of mother
- 9) Nonlocal population by age and sex
- 10) Total employment by sector
- 11) Basic employment by sector
- 12) Nonbasic employment by sector
- 13) Labor income by type
- 14) Personal income by component

The impact of a given project, or a set of projects, is assessed by comparing projections with and without the project or set of projects. The CPM has the capability to display the runs directly or to display the difference between any two runs. The difference between a run with and without a project would be the measure of the impact of the project.

#### Subcounty Allocation Module

The purpose of the Subcounty Allocation Module (SAM) is to disaggregate CPM outputs and assign economic, demographic, and housing values to subcounty units of analysis. Two components of the SAM, corresponding to two distinct levels of geographic disaggregation of interest to planners, are used. The first component -- the allocation area component -- facilitates projections of socioeconomic variables for subcounty areas which, in the aggregate, total project county values. Thus, the planner or analyst may carry out analysis of allocation area conditions that are quantitatively comparable and consistent with county projections.

Twelve tables are available from the allocation area module:

- 1) Components of population change
- 2) Components of employment migration
- 3) Components of temporary construction work force
- 4) Population by age and sex
- 5) Migration by age and sex
- 6) School age population
- 7) Deaths by age and sex
- 8) Births by age of mother
- 9) Transient population by age and sex

- 10) Employment by place of residence
- 11) Labor income
- 12) Components of housing

The second component -- the jurisdiction component -- allows the user/analyst to quantify socioeconomic conditions and impacts at a level of detail consistent with operational service provider's areas of service. The projections support the investigation of growth impacts upon municipalities, school districts, and special jurisdictions.

The output from the jurisdiction component consists of projections for the following:

- 1) Age- sex-specific population
- 2) Unit-type specific housing stock for each unique jurisdiction modeled

The output allows the year-by-year analysis of changing demographic and housing conditions within each or all jurisdictions.

### 2.3.1.3 Scenarios

Five scenarios have been developed. The first is a baseline forecast, which does not include any of the proposed projects that are the subject of this analysis. The second is a forecast for the KME Mine. The third includes forecasts for the Consol Level 1 Mine and the Consol Level 2 Mine. The fourth is a forecast of the Youngs Creek Mine. Finally, a cumulative scenario includes the KME, Consol Level 2, Youngs Creek, and Tanner Creek mines. The cumulative scenario is also different from the individual mine scenarios in that it assumes a road will be built between Lodge Grass, the Youngs Creek Mine, and the Consol and KME mines near Decker. This road would not affect overall employment at any of the mines, but it would result in more Indians being employed at the Consol and KME mines. More information on these projects is presented in Chapter 5.

### 2.3.1.4 Analytic Approach

This section presents the broad outlines of the analytic approach utilized in forecasting the population, economic, and commercial parameters for the Decker study region.

The Decker study region consists of Big Horn County, Montana and Sheridan County, Wyoming. Based upon the analysis of community patterns of the work force for the proposed actions and the distribution of local purchases by the proposed mines, the primary area of influence for the proposed action was principally determined to include these two counties, as in Section 2.1.

Due to the large segment of Indian population in Big Horn County, the Crow and Northern Cheyenne tribes were individually forecast, as was the non-Indian population in Big Horn County. In chapters 4 and 6 through 10, the non-Indian population of Big Horn County, including those who live on the Crow and Northern Cheyenne Indian reservations are covered in the Big Horn County sections. However, the population and employment forecasts for Indian residents are portrayed in more detail by subcounty area under the Crow and Northern Cheyenne reservation sections. The basic demographic characteristics for the Crow, Northern Cheyenne, and non-Indian populations were obtained from the 1980 census. In these forecasts, the Crow population was adjusted upward to account for the 1980 census undercount by utilizing tribal enrollment figures provided by the Crow Tribe. These adjustments were reviewed with local tribal leaders. In this report, Chapter 3 Existing Environment portrays the detailed characteristics of the Crow Tribe in terms of the 1980 U.S. Census figures. These unadjusted figures were used because no data were available to allow adjustment of census data at this level of detail. However, in the forecasts which are described in chapters 4 and 6 through 10, the 1980 Crow tribal population on the Crow Reservation and in Hardin was

adjusted upward by 26 percent, which meant that total population in Big Horn County was adjusted upward by 20.7 percent since no adjustments were made for the Northern Cheyenne residing in Big Horn County.

Birth and death rates, derived from vital statistics records obtained from the states of Montana and Wyoming, provided the foundation for projecting natural increases in the population and have been benched to actual births and deaths for each of the individual populations. Actual births and deaths for the Crow, Northern Cheyenne, and non-Indian populations were obtained from the vital statistics records and data compiled by the Indian Health Service.

Net migration for the Crow, Northern Cheyenne, and non-Indian populations were derived by predicting the 1976 and 1980 populations, using a cohort-survival model, from the 1970 population and historical births and deaths. The predicted populations were then compared to the 1970 and 1980 U.S. Census counts to calculate net migration by cohort. Net migration derived in this manner was then compared with information available from local high schools concerning student migration and other census information depicting the total net migration from 1970 to 1980.

Labor force participation rates were derived from census information, state labor force and employment data, and information obtained from informed local individuals. The labor force and labor force participation rates for the Crow, Northern Cheyenne, and non-Indian populations were benchmarked to the adjusted 1980 population based upon employment data, unemployment rates, and census labor force participation rates available for each population.

Employment information for the study region was derived from two primary sources: (1) mining and major construction project employment information was obtained from individual company representatives along with information on wages paid, local purchases of goods and materials, and residential distribution of these workers, and (2) employment information on other economic sectors was obtained from the Bureau of Economic Analysis (BEA), state employment data, census information, and local reports on Indian employment. Wages paid in these other economic sectors were also obtained from BEA data.

Projections of employment for the mining sector and major construction projects were obtained from work force schedules provided by the individual companies. Projections for the other economic sectors were derived from a historical analysis of their growth in employment and the major shifts in employment due to the increase in mining activity in the study region. The projection of employment is based upon projecting the basic employment in each economic sector over the forecast period. The derivation of basic employment in many instances was obtained from individual firms. Other basic employment forecasts were derived from the analysis of employment shifts due to mining activity, local purchases of goods and services by basic sectors of the local economy, and other economic reports prepared for the Decker study region. Basic employment by sector is by place of residence and has been adjusted to correlate with the demographic and labor force information discussed above.

The assumptions used in forecasting demographic and economic parameters are presented in Section 4.2.1.

#### 2.3.1.5 Commercial Opportunity Forecasts

The average number of people who support given types of commercial establishments in rural Montana and Wyoming towns was determined by means of a threshold analysis. (In this case, rural Montana includes all of Montana except Billings, Bozeman, Missoula, Helena, Great Falls, and Kalispell; rural Wyoming includes all of the state except Casper and Cheyenne.) A business threshold was determined by dividing the number of people in rural areas by the number of establishments of a certain kind in rural areas. For example, in 1980, each gasoline service station was supported by an average of 607 people, and each car wash was



supported by an average of 6,971 people. A complete list of rural Montana-Wyoming thresholds is presented in Table 2.3.1.5-1.

The threshold analysis yielded a list of commercial establishments that could be supported by the Big Horn County and Sheridan County trade areas' populations. When using the threshold levels for impact scenarios, this approach might be viewed as conservative since future incomes in the study area will probably be higher than current income averages. Higher income implies greater disposable income and therefore more demand. This is offset to some extent, however, by having other high growth communities such as Gillette and Glendive in the rural category.

In impact scenarios, commercial opportunities forecasts are most timely after nonlocal construction work forces have left and as soon as operations work forces have stabilized. In the Decker study, this period of stabilization occurs in about 1990 for all projects except Consol Level 2 and the cumulative scenario. Hence, the commercial opportunity forecasts and impacts were prepared for 1990 in all cases but the Consol Level 2 and cumulative scenarios; these latter were prepared for 2000. For comparison purposes, the baseline forecasts were prepared for both 1990 and 2000. When interpreting the forecasts of commercial opportunities, it is important to note that the actual number of commercial establishments will depend on a wide variety of factors that include entrepreneurial initiative, local business climate and incentives, size of existing establishments, and other location-specific factors that are difficult to incorporate in the threshold analysis. Hence, the forecasts should be viewed as an indicator of commercial establishments and not as either an upper or lower bound on the number of commercial businesses that actually may be established.

## 2.3.2 Social Life and Cultural Diversity

### 2.3.2.1 Introduction

Identification and description of distinctive social and cultural groups and their relationships is an important component of the description of the existing social environment. Furthermore, addressing the implications of energy development on such groups constitutes a critical element of social impact assessment. This is particularly true in a study region where the affected population includes two different Indian groups, a rural population with distinctive and long-standing occupational and geographic ties, several small towns, and a regional center.

The purpose of the social assessment task is to address the immediate and cumulative effects of the proposed mines on the cultural orientation, social organization, and quality of life of social groups and communities in the study area. A social history of the area was prepared to: (1) document the social characteristics of the study area and the changes they have undergone, and (2) provide a basis for anticipating and evaluating the changes likely to be caused by the proposed increase in coal mining.

In addition to cultural uniqueness and diversity and social history, seven aspects of social life were examined and included in the assessment, although they have not been addressed in these terms:

- 1) Community development
- 2) Social structure
- 3) Lifestyles (including recreational preferences)
- 4) Values
- 5) Intergroup conflict
- 6) Organizational and institutional analysis
- 7) Social problems

The basic social assessment activities were enhanced by completion of several research efforts:

TABLE 2.3.1.5-1  
Commercial Establishment Thresholds  
Rural Montana and Wyoming  
1980

Type of Commercial Opportunity	Population per Establishment
<u>Retail</u>	
Gasoline Service Station	607
Eating and Drinking Place	442
Grocery and other Food Store	1,301
Motor Vehicle Dealer and Auto Supply Store	1,501
Clothing and Shoe Store	1,686
Lumber, Hardware, and Mobile Home Dealer	1,346
Furniture and Household Appliance Store	1,948
Department Store	6,950
Drug, Variety, General Merchandise Store	1,089
Sporting Goods, Hobby, Flower, Gift, Sewing Store	1,188
Liquor Store	2,776
Jewelry Store	3,873
Book Store and Newstand	11,377
<u>Service</u>	
Hotel, Motel, Commercial Campground	550
Beauty and Barber Shop	971
Auto Repair Shop	983
Legal, Accounting, Advertising, Data Processing	534
Engineering, Architecture, Surveying	2,241
Equipment and Auto Renting and Leasing	3,267
Laundry	2,852
Appliance, Furniture, and Shoe Repair	2,178
Movie Theatre and Bowling Alley	3,564
Janitorial Service	2,432
Photographic Studio	4,482
Car Wash	6,971
Funeral Service	12,549
<u>Finance and Real Estate</u>	
Real Estate Office	1,137
Insurance Agency	2,446
Personal Credit Institution	4,366
Commercial Bank	4,833
Savings and Loan Association	31,231

Source: Mountain West Research-North, Inc., 1982.

- 1) A study of the social history of the area, with special attention to the introduction or emergence of socially/culturally unique groups and to the cultural and social diversity/complexity of the area. Groups of obvious interest include the Indians, the pioneers, the miners, and the urban residents (Sheridan).
- 2) A study of mine workers (and their families) to develop a worker profile delineating:
  - Demographic characteristics of the worker households
  - Residential location and housing preferences
  - Commuting (and carpooling) patterns
  - Recreational preferences and use patterns
- 3) A study of area residents to obtain information about:
  - Attitudes toward development and the proposed mines
  - Perceptions of their community and how it has been (and will be) affected by energy development
  - Perceptions of personal well-being and identification of the values that shape or underly definitions of quality of life and that give special importance to aspects of this lifestyle
  - Social networks and affiliations
  - Employment and demographic characteristics
- 4) A study of the communities in the study area to delineate their response to energy development and the effects of energy development on community resources and institutional structure, social organization and relationships, and indicators of social well-being (social problems).
- 5) A study of Crow Reservation residents by the Crow Tribe. Topics of interest include:
  - Political institutions
  - Labor
  - Mitigation
  - Social problems (crime, health)
  - Policy formation
  - Tribal and municipal legislation
  - Cost and availability of goods and services
  - Participation in Indian festivals, ceremonies, and cultural practices
  - Relationships among state, federal, municipal, and tribal institutions
  - Perceptions of cultural uniqueness and cohesion

The approach used for social assessment and research was a blending of field observation and interviews, survey research methods, secondary data analysis, and historical research. Given the complexity of the social issues/concepts to be addressed, emphasis was placed on "triangulation" -- the use of multiple sources and multiple methods to hone in on the most sociologically correct and meaningful conclusions.

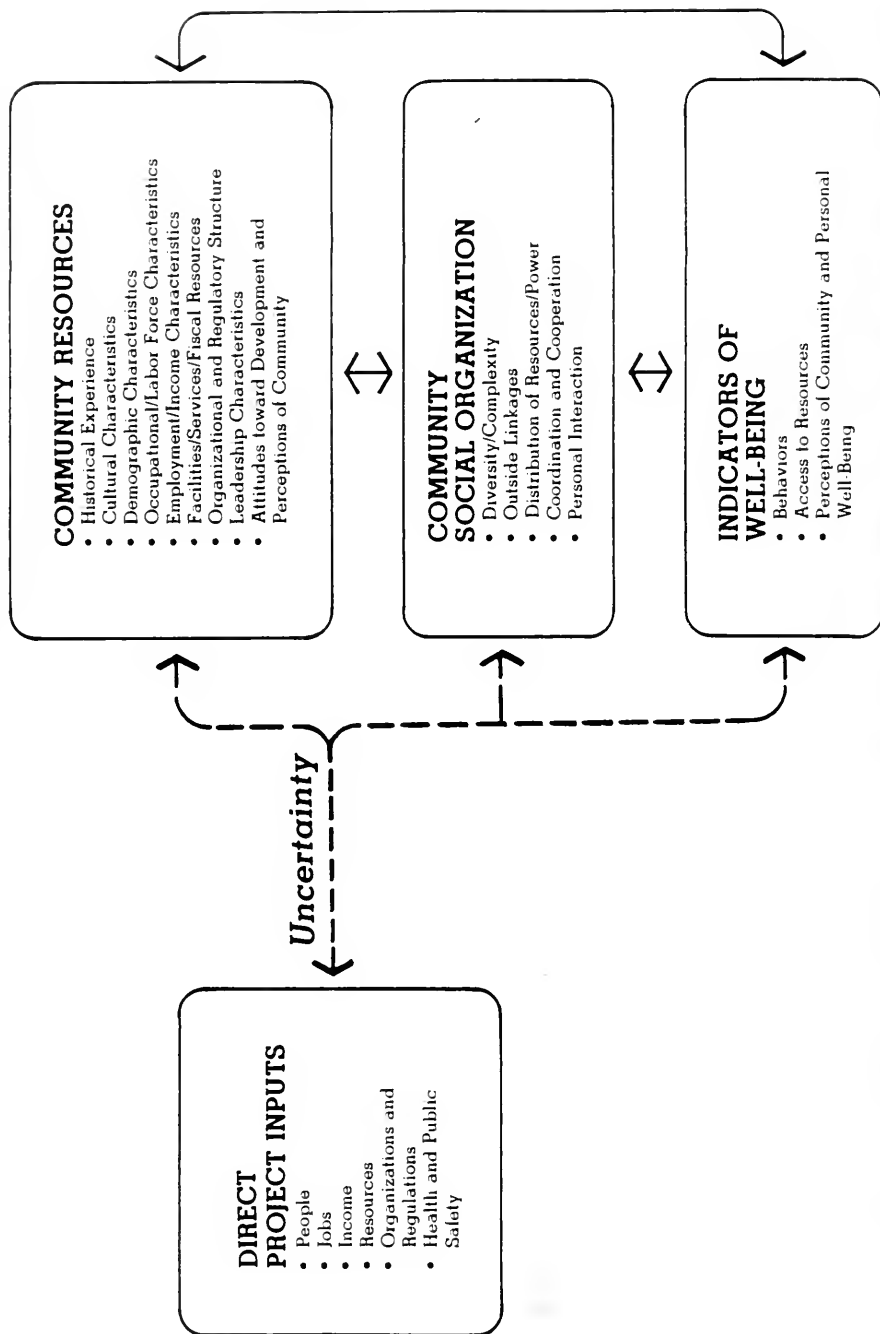
In 1980, Mountain West Research initiated a major project to develop a theoretically sound and implementable framework for social impact assessment. As part of this project, an extensive literature review was conducted (1981), field research in ten impacted communities was implemented and analyzed (1981-1982), and a Guide to Social Assessment was prepared. This approach served as the primary analytic framework for the social assessment and research. The essential elements of this framework are outlined below.

#### 2.3.2.2 The Social Organization Model

Founded on extensive analysis of resource-based actions and the social effects they have caused in rural, western communities, a model (shown in Figure 2.3.2.2-1) was developed to illustrate the analytic framework for social assessment. The framework identified the following four major topics that were considered in assessing the social effects of a proposed action:

- 1) Direct project inputs
- 2) Community resources
- 3) Community social organization
- 4) Indicators of social well-being

# The Social Organization Model



Source: Mountain West Research-North, Inc., 1982.

Each of these is explained below to clarify the approach that was used. This section is excerpted from The Guide to Social Assessment (Branch et al. 1982).

### Direct project inputs

Energy development affects the social environment of a community or an individual by changing the demography, jobs and technology, income, resources, organizations and regulations, and sometimes, health and safety. Changes in each of those areas produce changes in the existing situation and therefore have the potential for causing social change. Research on social change has shown that it is not only what is introduced that is important, but also when and how it is introduced and the degree of uncertainty that is created. For example, whether a company or agency follows a policy of providing accurate, up-to-date information or remains secretive about its plans, or whether the company or agency is perceived as being in control of the factors influencing the schedule and magnitude of the inputs to the community can make a major difference in the amount and kind of social change that results.

What needs to be known about a proposed action in order to assess its social effects includes the following:<sup>1</sup>

- 1) The number and demographic characteristics of the people who enter or leave the community as a result of the proposed action, with particular attention to schedules and temporary residence
- 2) The number and type of jobs created or eliminated by the proposed action and their general distribution among longtime residents and newcomers
- 3) The amount and general distribution of income brought to or removed from the community or affected individuals as a result of the proposed action
- 4) The magnitude and type of resources brought to or removed from a community or affected individuals by the proposed action (including tax revenues)
- 5) The number and type of organizations and regulations created or eliminated as a result of the proposed action
- 6) Changes in health and public safety caused by the proposed action

For large projects, substantial analysis is required to determine the magnitude, schedule, and certainty of the direct project inputs to each study area community. Most of this analysis has been done in the course of the economic/demographic assessment of the project.

### Community resources

The resources available to the community are an important determinant of how the community and its residents will be affected by the project inputs. The importance of some of these resources is relatively obvious, such as the availability of facilities and services (e.g., enough schools, hospitals, homes, etc.). However, a part of a community's resources is what it knows and how it feels about dealing with major projects. As a result, the community's experience with development or other major community changes as well as residents' attitudes towards development need to be understood.

The community resources most influential in determining how the community will react to and be impacted by a project are the following:

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<sup>1</sup>To assess the no-action alternative or to establish baseline conditions, the same model and process can be employed, with the changes that would occur in people, jobs, income, resources, organizations, regulations, and public health and safety under baseline conditions substituted for the direct project inputs

- 1) The community's previous experience with development
- 2) The community's cultural characteristics, particularly the presence of unique populations such as Native Americans
- 3) The community's demographic characteristics
- 4) The community's occupational (livelihood) and labor force characteristics
- 5) The community's employment and income characteristics
- 6) The community's existing or planned facilities, services, and fiscal resources
- 7) The community's organizational and regulatory structure
- 8) The community's leadership characteristics
- 9) The community residents' attitudes toward development and their perceptions of the community

Much of the information about both existing resources and expected changes has been included in the economic/demographic or the facilities/services sections and will not necessarily be repeated in the social discussion. It should be noted, however, that this information is important to the social analysis.

### Community social organization

Community social organization is the structure and processes that organize how people in a community relate to each other. Culture, the shared ideas and expectations that regulate behavior, is the organizing principle underlying social organization. In an earlier age, different communities had very distinct cultures. Now, in a country where almost everyone is linked by newspaper, radio, or television coverage of events both in the United States and around the world, much of this distinctiveness is lost. The proliferation of national associations and interest groups, as well as expanded roles of federal and state government, also played a role in reducing cultural differences. However, the presence of a sizable number of people from a unique cultural group may cause a particular community to be culturally distinct and therefore to have a particular response to energy development.

But social organization is not based solely on ethnic and religious ties or distinctions. There are a number of other patterns or forms of interaction that are highly significant. There are five characteristics of how people organize themselves in communities that show up in social research as particularly significant in determining what social change occurs in a community. These five characteristics are the following:

- 1) Differentiation (diversity/complexity)
- 2) Outside linkages
- 3) Stratification (distribution of resources/power)
- 4) Integration (coordination and cooperation)
- 5) Patterns of personal interaction

Differentiation (diversity/complexity). Differentiation refers to the range of values, interests, and roles within a community. Research indicates that as a community grows, if everything else is equal, the diversity of values and groups will increase, and the ways people have to interact to get things done will become more complex and formalized. Economic growth, particularly if associated with new kinds of economic development such as the energy industry, will result in increased diversity in technology and in the kinds of occupations and sources of income within the community. Not only will there be an increase in economic diversity, but the accompanying increase in population will usually also increase ethnic and cultural diversity as well as the diversity of personal experience and background. This can be both a source of stimulation and conflict for a community. Different groups may have different needs, place different demands for services on the community, and because of differences in cultural norms, exhibit differences in social behavior.

Social science research indicates that increased diversity/complexity may be an inevitable consequence of population growth. One consequence of this increased diversity/complexity is increased interdependence. This has advantages, but it can also increase the effort required to keep the diverse elements operating together effectively and increase the need for more formal procedures.

One important reason for assessing a community's complexity/diversity before the project begins is that the amount of social change that will occur depends on whether or not the community is already relatively specialized and diverse. If a community is relatively homogeneous, then the changes required to adapt to growth will be greater and may seem more significant to the residents.

Outside linkages. Outside linkages refers to the extent to which local residents, institutions, economic resources, and decision-makers are influenced by people outside the community and the extent to which the community has the ability to call upon outside resources for support and aid. In some towns, usually the smaller ones, people may relate to each other primarily in providing services, selling goods, forming judgments, and making decisions. In others, there may be a greater orientation and attention to outside markets, activities, and trends. Some communities have established comparatively few ties with outsiders who control resources or information that could be used to provide assistance, while others have a well-established and effective network of such ties.

As projects are introduced from the outside, particularly those which result in a large in-migration of new residents, these characteristics can change dramatically. The community may become large and wealthy enough to attract a national supermarket chain. Sources of loans and credit other than the local bank may become available. Local decision-makers may have to work with numerous state and federal agencies. Major decisions concerning employment may be made by the management of a company with headquarters hundreds of miles away. Newcomers bring with them new ideas, practices, and commitments from the larger society. The products produced by community labor are often shipped out of the community, and the markets for these products have little to do with local conditions. Such changes may substantially increase the opportunities for some people in the community. They may also lead to the community feeling it has less control over its future. The ability of the community to handle or control its future may depend upon its ability to draw on resources outside the community, such as political power, money, or knowledge, through the establishment or utilization of outside ties.

Stratification (distribution of resources and power). In every community, there are some differences in access to community resources and services. These are linked to people's education, occupation, financial position, family ties, land ownership, political power, and so forth. The particular patterns of differential access and factors influencing the distribution of resources and power can vary substantially from one community to another.

The issue of how resources are distributed in a community becomes important in assessing social impacts because it is not enough to know that a project will introduce new resources and opportunities into a community. It also is necessary to know how those resources will be distributed. Knowledge that only some people will benefit or that the position of powerful groups is threatened may help explain attitudes towards the project and may also explain the willingness (or unwillingness) of the community to provide services for the project.

Generally speaking, the increased flow of resources into a community results in increased opportunities for accumulation of resources. In the short term, economic development often creates problems for some people in the community. People on fixed incomes or people who are chronically unemployed may be worse off because economic development may inflate housing prices and prices for other goods and services. While most people may be more than compensated for this increase with increased earnings, people who are not in a position to benefit from economic development may suffer.

If there is an economic or political elite in a community, this elite may find itself in competition for new resources and may be faced with a new elite created by a major project. When development is slow, membership can be extended gradually to members of the new elite. But a major energy project, for example, may introduce into the community a significant number of well-paid and well-educated people who expect to have access to resources and services that is commensurate with their income and education. This may pose a challenge to the old elite and generate conflict.

With rapid economic growth, basic economic power may be shifted from one sector of the economy to another. This means also that relative status is decreasing for some groups at the same time that it is increasing for others. In particular, economic power is increased for those who are able to organize and control resources in the community and for those who have the best links to the outside world.

Integration (coordination and cooperation). Coordination is a term used for the process of organizing and focusing the activities of the various elements of the community. Cooperation is the process by which people work together to get something done. Integration covers these processes as well as that of incorporating and including members of the community. As mentioned earlier, increased diversity/complexity may require an increased effort to keep things coordinated and to promote cooperative effort. Decision-making that involves outside agencies or company management can also create demands that previous community decision-making processes did not have to accommodate. Generally speaking, the more equity there is in the distribution of resources, the more likely it is that interconnections have been formed with all parts of the community and that mechanisms for cooperation have been established.

One crucial question is whether the coordination and cooperation processes needed to take action and manage change exist before a new project is introduced into the community. Research shows that this is very crucial in determining the extent to which the impact of change is negative. In smaller communities, the resources may simply not be available to support the formal processes for managing change, such as in a town that can't afford a paid planner. On the other hand, in smaller communities there may be informal control processes which are effective (for example, the town banker doesn't issue a loan for development that the city fathers don't think is in the community interest). The problem is that these informal processes tend to break down when resources come in from the outside and therefore may become ineffective or counterproductive at the point where control is most needed. The banker's willingness to loan money would have little meaning to a major energy company. To maintain control, these informal processes tend to be supplemented or replaced by more formal procedures. This change can affect the complexity of the community as well as the established patterns of personal interaction.

Personal interaction. In every community, there are patterns of how people relate to each other. In small communities, people usually share a common background and relate to each other on the basis of knowing and being known by virtually everybody. People know each other's family background, approximate financial condition, and personal characteristics. There is little need for formal procedure because everybody knows each other so well. The patterns of stratification tend to be well-established and personalized through the patterns of interaction. People know who is on their social level and who is not. The political and social elite, if there is one, know how to get things done. As a community gets larger and there is an influx of people into the community, there is a tendency for patterns of interaction to become more complex and far more formal procedural norms to be established. People have to deal with a higher proportion of complete or relative strangers. The local businessman who never had to show identification to cash a check in town must now show two forms of identification to cash a check at the new chain supermarket. The local developer who used to handle permit problems with the county commission now must submit a formal plan, deal with a planning staff, and appear at public hearings. As sectors of the community become specialized, people may lose contact with others in the community with whom they have had regular contact in the past.



In many ways, "personal interaction" is a summing up of many of the impacts of the other four processes above. Changes in any of the other four will usually result in changes in patterns of personal interaction.

### Indicators of social well-being

The final major topic which the social assessment must address is social well-being. This begins to deal directly with impacts upon the individual, although most the available indicators of well-being still use community figures (for example, the crime rate in the community) as the basis for assessing well-being.

One of the problems with social well-being is that it is an inherently subjective concept. Well-being is as much a feeling one has about one's life as an objective state. Among other things, well-being is defined in relationship to expectations of the conditions that should prevail in one's life. Somehow, a social assessment must include an effort to objectively assess the extent to which the social well-being of various groups in the community will be affected by the project. The approach followed in this report combines both objective and subjective measures. The three basic measures that appear to be the most important are the following:

- 1) Rates of behaviors
- 2) Access to resources
- 3) Perceptions of community and individual well-being

Rates of behaviors. There are a number of behaviors that have been used as objective aggregate indications of social well-being and have a basis both in theory and research. The most useful of those for which data are generally available appear to be patterns or rates of behavior within the community that indicate social, family, or personal problems such as crime, family violence, delinquency, divorce, and so on.

Access to resources. Here the social assessment considers the aggregate and per capita measures of resources and concentrates on the changes in the pattern of resource availability in the community. Particular attention is given to those groups whose access is likely to be changed as a result of a proposed project. This analysis relies heavily on the economic and demographic and facilities and services analyses.

Perceptions of community and individual social well-being. Information concerning perceptions is essential to the forecasting and interpretation of community response to a proposed project. As indicated earlier, residents' perceptions often do not correspond exactly with objective changes, but perceptions can have a powerful influence on individual and social action. If people perceive that they do not have access to resources, they are as closed off from resources as if a formal system blocked their availability. If newcomers believe that they will not be accepted, they may never extend themselves to the old-time residents and may never ask to join existing organizations. The behaviors and attitudes resulting from these perceptions can thus produce very real social impacts. In addition, given the inherently individualized nature of perceptions, measurement of residents' perceptions of well-being prior to the proposed action is an essential element in determining and evaluating changes in social well-being that might be caused if the action is taken. The methods used to obtain this information are described below, with supplementary information on field procedures included in Appendix E.

A census survey of all mine workers at the Big Horn Mine and a sample survey of workers at the Decker mines were conducted and the data analyzed. Details of the survey methodology are contained in the Decker Area Mine Worker Survey (1983).

Results of the mine worker survey were compared with historical worker profile data for similar occupations,<sup>1</sup> and a profile of mine workers was prepared.

An area resident survey was conducted in a sequence and manner described in the Area Residents Survey for the Decker Area Mines Comprehensive Social Sciences Study (1983). The survey results are also presented in this report. The topics in this survey were more complex than those covered in the worker profile, and interviews were conducted by telephone.

#### 2.3.2.3 Social History and Community Profiles

A social history of the area was prepared that delineates historical social trends, identifies and describes unique cultural groups, and characterizes the cultural diversity/uniqueness of the area over the last century.

This research was conducted according to established methods of historical research, primarily involving review of secondary sources, although some interviewing of long-time residents was included. Particular attention was given to historical trends in the aspects of social life and cultural uniqueness being addressed in the social assessment. The outcome of the research is a monograph report and an extensive bibliography (HRA 1983). The companion to this work element for the Crow Reservation is described in the Crow Report (American Indian Technical Service 1983).

The purpose of the community profile study is to develop a better data base and understanding of the manner in which communities respond to the demands of energy development and how community resources, institutional structure, social organization, and well-being characteristics are affected by it. The methods used for this study were similar to those employed in the community research component of the BLM Social Effects Study, which served as a basis for methodology and data comparison (Thompson, Branch, and Williams 1982). Sheridan, Ranchester and Dayton, Decker, and Birney were studied.

#### 2.3.2.4 Mine Worker and Area Resident Surveys

Because mine workers and their families constitute a principal aspect of the force for change, information about them is particularly useful. To follow the analytic framework described in Section 2.3.2.2, detailed data on area residents, with particular emphasis on attitudes, values, community attachment, and social linkages, are needed.

#### 2.3.2.5 Indicators of Well-being

The method for addressing issues of well-being follow that described in Section 2.3.2.2. In general, poor and incompatible data make interpretation of social well-being indicators unreliable and difficult. Consequently, they have been given less focus in the social assessment discussion.

#### 2.3.2.6 Crow Social Analysis

Specification of primary or field research on the Crow Reservation is provided in a separate report (AITS 1983).

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<sup>1</sup>Mountain West Research, Inc., L. Leistritz and Weiland, and J. Thompson, et al., have conducted both construction and operating worker surveys in the region since 1975.

### 2.3.3 Housing Analysis

#### 2.3.3.1 Introduction

The purpose of the housing component of this study is to analyze the existing study area housing market and to forecast future demand and supply under different development scenarios. The analysis compares demand forecasts with local builders' and developers' capacity to supply housing and projects housing deficits and/or surpluses.

#### 2.3.3.2 Housing Demand

This section presents a brief discussion of the housing model used to make demand forecasts. Section 2.3.3.3 provides details on the methodology used to estimate local housing supply.

As shown in Figure 2.3.3.2-1, the housing model uses population projections generated by the economic/demographic model to project total permanent and temporary housing demand by type of unit in each study area county and community. The housing model begins with an estimate of the current, occupied housing inventory (single-family detached, mobile homes, and multifamily) and then adds incremental changes in demand to derive housing demand for the next year. This process continues for each successive year in the projection period.

#### New households

Demand for housing units from new households is projected from changes in both the magnitude and age-sex distribution of the population as specified by the economic/demographic model. Age-sex specific headship rates are used to convert population into households. Different household formation structures are used for Indian and non-Indian populations.

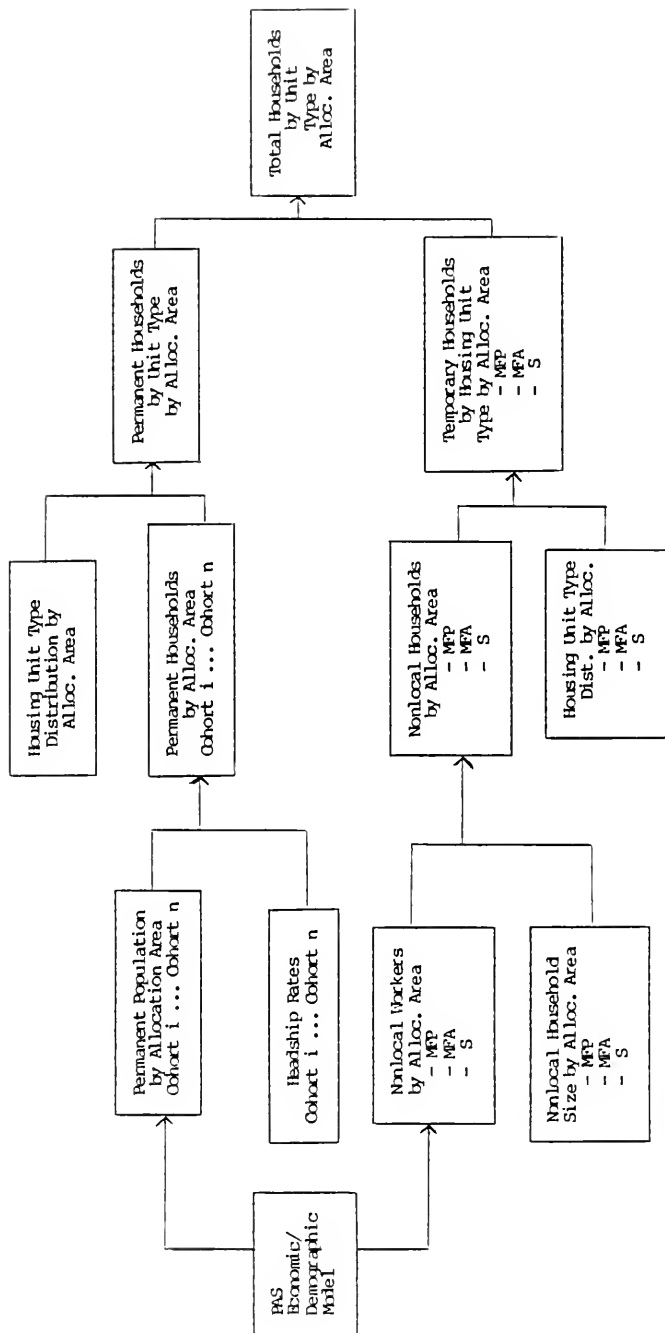
Housing demand is divided into five types: (1) married family present, male head; (2) married family present, female head; (3) married family absent, male head, (4) married family absent, female head; and (5) single. Each type of household is assumed to have demand for the types of housing units noted above. The demands for each type of new household in each age-sex cohort are aggregated for every community and subcounty area, and the result is housing unit demand from newly-arrived households. When added to total demand from the previous year, the result is total demand by type of unit for the current year.

It should be noted that in the housing forecasts, no adjustment is made for changes in household income of local populations. In cases where local households increase their incomes as a result of employment at a mine, the income can be spent to upgrade current housing, buy a new house, or not spent on housing at all. Because of the uncertainty surrounding these spending patterns, particularly on the part of the area's Indian population, the housing forecasts do not incorporate upward changes in income and should therefore be considered conservative.

Demand for housing from temporary populations is handled differently. In PAS, the user estimates the family status type distribution for temporary workers for each allocation area. Family status types include three categories: (1) married, family present; (2) married, family absent; and (3) single. The number of workers for each allocation area is converted to households by user-supplied household size factors per family status category. This methodology accounts for "doubling-up" by nonlocal construction workers who are single or whose families are not present. Total temporary households are then summed.

FIGURE 2.3.3.2-1

PAS Housing Model



MFP = Married, family present.  
MFA = Married, family absent.  
S = Single, widowed, divorced.

### 2.3.3.3 Housing Supply

#### Current housing inventory

The 1980 Census of Housing presented a complete inventory of housing for all of the allocation areas in Big Horn and Sheridan counties. The census divided housing into the following three components: (1) single-family detached units, (2) multifamily units, and (3) mobile homes. The census counts were assumed to be accurate for every allocation area except the Indian allocation areas of Big Horn County. More information on the method used to revise the inventories of Indian housing units is provided below.

#### Indian housing stock on the Crow Reservation and in Hardin

Because of disagreement with the 1980 census counts of Indian population and housing units, all data on housing units were reviewed. This section summarizes U.S. Census and BIA data on Indian housing unit and then resolves the apparent discrepancies.

Table 2.3.3.3-1 presents U.S. Census data on housing units and race of householder for occupied units in 1980. As shown in the table, the Indian and non-Indian percentages of occupied units were used to convert occupied Indian units into year-round Indian units for each allocation area on the Crow Reservation and in Hardin. As shown, it is estimated that in 1980, there were 926 year-round Indian housing units on the Crow Reservation and 121 year-round Indian housing units in Hardin.

#### Housing stock -- 1982 U.S. Bureau of Indian Affairs housing condition survey

As part of its Housing Improvement Program (HIP), the Bureau of Indian Affairs conducts an annual housing inventory on Indian reservations. The survey includes two of the three racial types of households on the Crow Reservation. As shown below, housing units on the reservation can be divided into the following three categories:

- 1) All-Indian households
- 2) Indian-white households
- 3) All-white households

Because the HIP includes all houses that have an Indian member, the survey includes categories (1) and (2) above, but does not survey houses included in category (3). The 1982 survey counted 1,223 total housing units on the Crow Reservation. Because local housing officials have indicated that only a few Indian houses have been built since the 1978 moratorium on HUD-financed housing, it is reasonable to assume that the 1,223 units counted by the BIA survey very closely approximate the number of Indian houses in 1980. (Plentyhawk 1982.)

#### Comparison and resolution -- U.S. Census and BIA housing counts

Because of the different definitions used to classify Indian households, caution must be used when comparing U.S. Census and BIA housing counts. The two counts have an overall difference of 297 units (BIA, 1,223 units; U.S. Census, 926 units). Part of this difference could be explained by the fact that the BIA count includes households which have a non-Indian householder but have at least one Indian member. However, this group of households does not appear to be large enough to explain the total difference between the two counts.

In order to resolve the above difference for projection purposes, it was decided that the 1980 Census Crow Indian housing count would be raised by 21 percent to correspond with the total county increase in

TABLE 2.3.3.3-1

## 1980 Housing Units by Race of Householder

Allocation Area	Total Housing Units <sup>a</sup>	Year-round Units <sup>a</sup>	Occupied Units <sup>a</sup>						Year-round Units <sup>b</sup>			
			Total	Indian	Percent Total Occupied		Non-Indian	Percent Total Occupied	Indian	Percent Year-round		Total Year-round
					Occupied	Occupied				Total Year-round	Non-Indian	
Crow Northeast	538	530	481	339	70	142	30	371	70	159	30	30
Crow Southeast	671	650	671	395	59	276	41	383	59	267	41	41
Crow Central	396	315	262	68	26	194	74	82	26	233	74	74
Crow West	129	129	112	78	70	34	30	90	70	39	30	30
TOTAL RESERVATION	1,734	1,624	1,526	880	58	646	42	926	58	698	42	42
HARDIN	1,360	1,347	1,244	108	9	1,136	91	121	9	1,226	91	91

<sup>a</sup>U.S. Department of Commerce, Bureau of the Census, STFI Census Count, 1980.

<sup>b</sup>Distribution estimated by Mountain West Research-North, Inc., 1982.

Indian population. Table 2.3.3.3-2 presents the revised Indian year-round housing unit counts that will be assumed in the housing forecasts. As shown in the table, the non-Indian housing unit counts for each allocation area have not been revised.

#### Local building capacities

Information on housing supply was obtained through personal interviews with local builders, developers, realtors, bankers; and planning officials. These interviews revealed local construction capacities to be about 500 units per year in Sheridan County and about 50 units per year in Big Horn County. In both counties, and particularly in Big Horn County, an increase in housing demand would be met by nonlocal contractors from Billings and other places in Montana and Wyoming.

#### 2.3.3.4 Supply-Demand Comparison

Based on the demand forecasts and local supply limits described above, a supply-demand comparison is made for each county and for the Crow Reservation to determine whether housing deficits and/or surpluses are likely to occur. The results of these comparisons for each scenario are described in chapters 4 and 7 through 10.

#### 2.3.4 Facilities/Services

##### 2.3.4.1 Introduction

The study of facilities and services involves two major components of research: the inventory of the existing environment and the analysis of future needs. The inventory provides information pertaining to availability, utilization, capacity, and local policies and conditions that affect future usage and determine strategies and actions for response to future needs. The analysis of future needs measures the demands of future population on public facilities and services. Existing capacities are compared with future levels of demand to identify conditions of deficit for facilities and services.

The inventory of the existing environment and the analysis of future needs are based upon local and nonlocal sources of secondary information; local, primary information; and forecasts from the economic and demographic components of this report. Summaries of the procedures of research for the inventory of the existing environment and the analysis of future needs for facilities and services are presented below.

##### 2.3.4.2 Inventory

The inventory of public service systems was conducted by reviewing reports, budgets, and plans and by holding personal interviews in each community with the operators and providers of public services and facilities. The data were organized and summarized, and prior to publication, were reviewed and validated by interviewed personnel. Information included the condition and quantity of existing services and facilities and plans for future expansion.

The inventory was more than a statistical data-gathering process. It also attempted to determine management policies and capacities, since such policies significantly affect how new pressures from growth will be met. Without an understanding of these policies, a valid evaluation of mitigation programs is impossible.

TABLE 2.3.3.3-2  
Year-round Housing Unit Assumptions

Area	Indian Units		Non-Indian Units
	From Table 2.3.3.3-1	Table 2.3.3.3-1 x 1.207	
Crow Northeast	371	448	159
Crow Southeast	383	462	267
Crow Middle	82	99	233
Crow West	90	109	39
<hr/>			
TOTAL RESERVATION	926	1,118	698
Hardin	121	146	1,226

Source: U.S. Department of Commerce, Bureau of the Census, STF1 Census Count, 1980.



#### 2.3.4.3 Forecasting Facilities/Services -- Crow Reservation and Schools in Big Horn County

The analysis of future needs provides information for the assessment of rates of change and levels of future demand for facilities and services. Impacts were identified through the comparison of requirements for personnel, capital facilities, and equipment for the existing environment and mid-term (1995) and long-term periods (2015) of projection under baseline and with-project scenarios. Forecasts of future requirements were derived by applying planning standards to forecast population levels. The standards were developed to ensure that local policies and conditions, as they affect facilities and services in specific jurisdictions, were accurately portrayed. Whenever possible and appropriate, local standards were utilized. When local standards were unavailable, representative standards developed for similar areas were used. The tables in Appendix D present the standards used to forecast facilities and services in specific jurisdictions of the Decker project study area.

Future needs for facilities and services were evaluated for the mid-term and long-term projections. The mid-term projection (to 1995) period was considered effective for Big Horn County because the patterns of growth in the Montana portions of the Decker project study area do not create a large, temporary peak demand. Rather, in most cases, demand increases relatively steadily (or remains constant) throughout the forecast period. The long-term projection represents the future needs for a relatively stable population at the end of the period of study (2015), when construction of all projects has been completed.

The discussion of governmental facilities and services for jurisdictions in the study area is organized according to types of governmental functions. Only major governmental facilities and services that operate on a full-time basis have been included in the analysis.

This approach is considered effective since previous research has shown a consistent relationship between the levels of demand associated with these primary facilities and services and the levels of total demand that are obtained when the effects of auxiliary facilities and services are also included. The effects upon total demand for facilities and services are presented in the fiscal sections of this report. The information is presented in terms of net fiscal balance for expenditures and revenues in the jurisdictions that have formal, local budgetary procedures. Certain facilities and services may experience increased levels of demand in the baseline and with-project scenarios, but remain essentially unaffected because the magnitude of the impact is insufficient to require change or expansion of the current systems for service delivery.

The future requirements for personnel are focused on professional staff positions. There is a consistent relationship between demand associated with professional staff and demand associated with auxiliary staff for specific facilities and services.

Future requirements for capital facilities and equipment are estimated for the types of facilities and services that are typically financed with revenues accruing from the general tax base, governmentally financed bonding procedures, and "user-fee" methods of finance. Demand forecasts for those types of facilities and services for which demand forecasts are not reliable because of their variability and dependence upon nonlocal decisions or conditions (examples include state and federal agencies, programs for nonmedical social services, and systems of post-secondary education) have not been presented in the analysis, though some are described as part of the existing environment.

The assumptions that control the study of facilities and services in the jurisdictions of the Decker project study area include the following:

- 1) The Indian population of the Crow Indian Reservation is the population base for the requirements of general government and police on the Crow Indian Reservation. The Indian population of Big Horn County is the population base for the requirements of health-related facilities and services on the Crow Indian Reservation. The total populations, both Indian and non-Indian, are the population bases for the requirements of municipal and unincorporated jurisdictions.

- 2) The standards utilized to determine future needs are local standards to the maximum extent possible. When local standards were unavailable, appropriate standards that have been developed for similar areas were utilized.
- 3) When quantitative information about existing facilities and services were unavailable, local determinations about adequacy were utilized to develop a description of the existing environment.
- 4) General government for the Crow Indian Reservation consists of the personnel and capital facilities provided by the Crow Indian tribal government. The administrative functions of the federal agencies that operate within the boundaries of the Crow Indian Reservation are variable and depend upon federal and local policies and conditions. Under these conditions, projections of future needs were beyond the scope of this report.
- 5) Projections for fire protection include personnel, capital facilities, and equipment appropriate for structural fire protection. One fire truck and accompanying space is the minimum requirement for structural fire protection. The inventory of the existing environment identifies facilities and services for structural fire protection and for range and grass fire protection.
- 6) Nonmedical human services were excluded from the projections for future needs. Programs such as Headstart, Women, Infants, and Children (WIC), and the Comprehensive Employment and Training Act (CETA), while having great importance for well-being, are variable and dependent upon the establishment of local and federal policies and conditions. Projections of future needs for these programs were beyond the scope of this report.
- 7) The projections of future requirements for facilities and services in the unincorporated jurisdictions were made for fire, water, sewer, and recreation. The unincorporated jurisdictions were excluded from projections of fiscal requirements because of the absence of formal, local budgetary procedures.
- 8) The projections of future requirements for education consisted of the public elementary and high school districts in Big Horn County. Private schools and post-secondary institutions were excluded from the impact analyses because of their variability and dependence upon unspecified local and federal policies and conditions. Projections of student enrollment have been rounded to the nearest ten students for the public schools in Big Horn County.

When appropriate, the public elementary schools include the personnel and capital facilities of elementary, primary, intermediate, and middle grades. In Big Horn County, the school systems in Hardin and Lodge Grass represent such consolidation. In the other schools, the existing elementary schools encompass kindergarten through grade eight.

Since the public high school and elementary school districts in Big Horn County own land adequate for expected future needs, land was excluded from the projections of future requirements for education.

The economic and demographic forecasts utilized assumptions about the migration patterns of Crow Indians that reduced the population of persons eighteen years of age on the reservation (see Section 2.3.1). Combined with the overall demographic structure of the population on the Crow Reservation, these assumptions result in projections of declining student enrollments for public high schools. Individual preferences and local policies may cause actual student enrollments to be greater than those presented in this study if these patterns of out-migration are altered. In addition, the distribution of students among high schools is subject to unpredictable fluctuation because students can choose which school they will attend, rather than being assigned to a school on the basis of residential location.

#### 2.3.4.4 Forecasting Facilities/Services -- Non-Crow Portion of the Study Area

The baseline and impact projections of public facilities were made by using a model structured to replicate the decision-making process for the timing and sizing of capital projects as closely as possible. The projections of manpower requirements for government agencies and departments were based on population multipliers determined from local and regional experience.

The projections of requirements for additional infrastructure capacity were triggered within the model when projected facility demand exceeded the existing capacity of the facility. The parameters used in the decision model to size and phase additional capacity include: physical dimension standard, cost standard, number of years of allowable over-capacity, construction lead time, and planning horizon. Each of these parameters is discussed below.

#### Physical dimension standard

The physical dimension standard is stated in terms of sq. ft. per unit of population. For example, a physical dimension standard for general administrative space might be 1,000 sq. ft. per 1,000 population, or 1 sq. ft. per person. The dimension standards used in producing the baseline and impact demands were based on local experience, when available, and other regional experience, as indicated in tables 2.3.4.4- through 2.3.4.4-7.

#### Cost standard

The cost standard is the unit cost of a facility and was used to calculate capital requirements. The unit cost of constructing general government space might be \$70 per sq. ft. All cost standards were expressed in 1982 constant dollars, as were the projections of capital outlay.

#### Number of years of allowable over-capacity

This parameter was used in determining the timing and sizing of capital facilities. It allows a degree of excess demand (or over-capacity) to be factored into the projections of capital requirements. For all facilities except schools and water and sewer systems, the model specified two years of allowable over-capacity before requiring additional capacity. For schools, one year of over-capacity was allowed, and for water and sewer systems, no over-capacity was allowed in the model.

#### Construction lead time

Construction lead time is the number of years of construction prior to first year of use. It also indicated the front-end financing of capital facilities. The construction/financing lead time was fixed at one year for all facilities.

#### Planning horizon

This was the parameter used to size facility construction. Demand was calculated over the length of the planning horizon to determine the amount of additional facilities to be constructed. For all facilities except water and sewer, the specified planning horizon was ten years. The planning horizon for water and sewer systems was established at twenty years.

#### 2.3.4.5 Assumptions about Standards

Tables 2.3.4.4-1 through 2.3.4.4-7 show the physical dimension and cost standards used for each of the study area jurisdictions (see also Appendixes C and D).

TABLE 2.3.4.4-1

Capital Facilities/Services Data Assumptions  
Sheridan County

Facility Category	Existing Capacity	Physical Dimension Standard (per person)	Unit Cost Factor	Expansion Plan	
				Capacity	Local Capital Outlay (1982 \$'000)
Gen. Admin. Space (sq. ft.)	18,400	0.90 <sup>a</sup>	\$70 <sup>a</sup>	35,270	\$5,000
Shop Space (sq. ft.)	7,000	1.30 <sup>a</sup>		40 <sup>a</sup>	
Law Enforcement (sq. ft.)	20,000 <sup>b</sup>	0.64	113		
Fire Space (sq. ft.)	13,500	0.50 <sup>a</sup>	57 <sup>a</sup>		
Social Services Space (sq. ft.)	3,400	0.10	70 <sup>a</sup>		
Library (sq. ft.)	18,900	0.70	100 <sup>c</sup>	10,000	1,000
Law Enforcement Personnel					
Sworn	10	.0004			
Nonsworn	10	.0004			
Fire Personnel	4	.00015			
Other Gov. Personnel	123	.00456			
Sheriff Vehicles	4	.00015			

Source: Briscoe, Maphis, Murray, and Lamont, Inc., and B.Y. Analytics, January, 1983.

<sup>a</sup>Regional estimate, Colorado Cumulative Impacts Task Force (CITF), 1982.<sup>b</sup>Total law enforcement space shared with city of Sheridan.<sup>c</sup>Based on going rate used by jurisdiction.

TABLE 2.3.4.4-2

Capital Facilities/Services Data Assumptions  
City of Dayton

Facility Category	Existing Capacity	Physical Dimension Standard (per person)	Unit Cost Factor	Expansion Plan	
				Capacity	Local Capital Outlay (1982 \$000)
Gen. Admin. Space (sq. ft.)	375	0.8 <sup>a</sup>	\$70 <sup>a</sup>		
Roads (miles)					
Residential <sup>b</sup>	1.4	.0017 <sup>a</sup>	267,000 <sup>a</sup>		
Collector	0.64	.0008 <sup>a</sup>	481,000 <sup>a</sup>		
Arterial	0.24	.0003 <sup>a</sup>	695,000 <sup>a</sup>		
Water System (gals.)					
Water Treatment	1,728,000	475 <sup>c</sup>	0.48 <sup>a</sup>		
Water Storage	140,000	475 <sup>c</sup>	0.43 <sup>a</sup>		
Water Distribution	1,728,000	475 <sup>c</sup>	0.57 <sup>a</sup>		
Sewer System (gals.)					
Sewage Treatment	80,400 <sup>d</sup>	100 <sup>c</sup>	1.28 <sup>a</sup>		
Sewage Collection	80,400	100 <sup>c</sup>	2.03 <sup>a</sup>		
Fire Space (sq. ft.)	500	0.5 <sup>a</sup>	57 <sup>a</sup>		
Fire Personnel	14	.020 <sup>c</sup>			
Other Gov. Personnel	3	.0043 <sup>c</sup>			

Source: Briscoe, Maphis, Murray, and Lamont, Inc., and B.Y. Analytics, January, 1983.

<sup>a</sup>Regional estimate, Colorado Cumulative Impacts Task Force (CITF), 1982.<sup>b</sup>Assume 100 percent developer cost.<sup>c</sup>Based on going rate used by jurisdiction<sup>d</sup>...

TABLE 2.3.4.4-3

Capital Facilities/Services Data Assumptions  
City of Ranchoester

Facility Category	Existing Capacity	Physical Dimension Standard (per person)	Unit Cost Factor	Expansion Plan	
				Capacity	Local Capital Outlay (1982 \$000)
Gen. Admin. Space (sq. ft.)	4,023	0.80 <sup>b</sup>	\$70 <sup>b</sup>		
Roads (miles)					
Residential <sup>a</sup>	1.22	.0017 <sup>b</sup>	267,000 <sup>b</sup>		
Collector	0.57	.0008 <sup>b</sup>	481,000 <sup>b</sup>		
Arterial	0.22	.0003 <sup>b</sup>	695,000 <sup>b</sup>		
Parks (acres)	72	.01 <sup>b</sup>	26,000 <sup>b</sup>		
Water System (gals.)					
Water Treatment	500,000	275 <sup>c</sup>	0.48 <sup>b</sup>		
Water Storage	500,000	275 <sup>c</sup>	0.48 <sup>b</sup>		
Sewer System (gals.)					
Sewage Treatment	32,000	100 <sup>b</sup>	1.28 <sup>b</sup>	168,000	\$115
Sewage Collection	32,000	100 <sup>b</sup>	2.03 <sup>b</sup>	168,000	
Fire Space (sq. ft.)	500	0.5 <sup>b</sup>	57 <sup>b</sup>		
Other Gov. Personnel	3	.0043 <sup>c</sup>			

Source: Briscoe, Maphis, Murray, and Lamont, Inc., and B.Y. Analytics, January, 1983.

<sup>a</sup>Assume 100 percent developer cost.<sup>b</sup>Regional estimate, Colorado Cumulative Impacts Task Force (CITF), 1982.<sup>c</sup>Based on going rate used by jurisdiction.

TABLE 2.3.4.4-4  
Capital Facilities/Services Data Assumptions  
City of Sheridan

Facility Category	Existing Capacity	Physical Dimension Standard (per person)	Expansion Plan	
			Unit Cost Factor	Local Capital Outlay (1982 \$000)
Gen. Admin. Space (sq. ft.)	19,000	1.2 <sup>a</sup>	\$70 <sup>b</sup>	
Sewage Treatment (gals.)	2,100,000	100 <sup>b</sup>	1.28 <sup>b</sup>	10,000
Water Treatment (gals.)	10,000,000	600 <sup>c</sup>	0.48 <sup>b</sup>	
Water Storage (gals.)	10,000,000	600 <sup>c</sup>	0.43 <sup>b</sup>	
Fire Space (sq. ft.)	4,284	0.264 <sup>a</sup>	57 <sup>b</sup>	938
Developed Parks (acres)	132.5	.008 <sup>a</sup>	26,000 <sup>b</sup>	
Shop Space (sq. ft.)	9,600	0.60	40 <sup>b</sup>	144
Roads (miles)	64.7	.004	567,000 <sup>d</sup>	
Police Vehicles	11	.0007 <sup>a</sup>		
Police Personnel	29	.002 <sup>a</sup>		
Fire Personnel	18	.0011 <sup>a</sup>		
Other Gov. Personnel	72	.0044 <sup>a</sup>		

Source: Briscoe, Maphis, Murray, and Lamont, Inc., and P.Y. Analytics, January, 1983.

<sup>a</sup>Based on going rate used by jurisdiction.

<sup>b</sup>Regional estimate, Colorado Cumulative Impacts Task Force (CITF), 1982.

<sup>c</sup>Peak demand, local experience.

<sup>d</sup>Regional estimate, CITF. Assume 61 percent of total road costs borne by public sector.

<sup>e</sup>Based on personal interviews with local officials.

TABLE 2.3.4.4-5

Capital Facilities/Services Data Assumptions  
Sheridan County School Districts

Facility Category	Existing Capacity	Physical Dimension Standard (per person) <sup>a</sup>	Unit Cost Factor	Expansion Plan	
				Local Capital Outlay	Capacity (1982 \$000)
<u>School District No. 1</u>					
Elementary Bldgs. (sq. ft.)	54,000	80 <sup>a</sup>	54 <sup>a</sup>		
High School Bldgs. (sq. ft.)	62,500	125 <sup>a</sup>	68 <sup>a</sup>		
Teachers	92	.1102			
Support Personnel	49	.0587			
<u>School District No. 2</u>					
Elementary Bldgs. (sq. ft.)	230,000	80 <sup>a</sup>	54 <sup>a</sup>		
Jr. High Bldgs. (sq. ft.)	77,000	110 <sup>a</sup>	68 <sup>a</sup>		
Sr. High Bldgs. (sq. ft.)	150,000	125 <sup>a</sup>	68 <sup>a</sup>		
Teachers	319	.0786 <sup>b</sup>			
Support Personnel	167	.0412 <sup>b</sup>			

Source: Briscoe, Maphis, Murray, and Lamont, Inc., and B.Y. Analytics, January, 1983.

<sup>a</sup>Regional estimate, Colorado Cumulative Impacts Task Force (CITF), 1982.<sup>b</sup>Based on going rate used by jurisdiction.



TABLE 2.3.4.4-6

Capital Facilities/Services Data Assumptions  
Big Horn County

Facility Category	Existing Capacity	Physical Dimension Standard (per person)	Unit Cost Factor	Expansion Plan	
				Capacity	Local Capital Outlay (1982 \$000)
Gen. Admin. Space (sq. ft.)	25,392	1.0 <sup>a</sup>	\$70 <sup>a</sup>		
Law Enforcement Space (sq. ft.)	18,848	0.40 <sup>a</sup>	113 <sup>a</sup>		
Social Services Space (sq. ft.)	2,040	0.10 <sup>a</sup>	70 <sup>a</sup>		
Library Space (sq. ft.)	8,600	0.70 <sup>a</sup>	100		
Law Enforcement					
Sworn Personnel	16	.0013			
Non-sworn	7	.0005			
Law Enforcement Vehicles	9	.0007			
Hospital Beds	50	.0033 <sup>b</sup>	70,000		
Physicians	3	.0002 <sup>b</sup>			
Nurses	6	.0005 <sup>b</sup>			
Other Personnel	7	.0006 <sup>b</sup>			

Source: Briscoe, Maphis, Murray, and Lamont, Inc., and B.Y. Analytics, January, 1983.

<sup>a</sup>Regional estimate, Colorado Cumulative Impacts Task Force (CITF), 1982.

<sup>b</sup>Based on going rate used by jurisdiction.

TABLE 2.3.4.4-7  
Capital Facilities/Services Data Assumptions  
Town of Hardin

Facility Category	Existing Capacity	Physical Dimension Standard (per person)	Unit Cost Factor	Expansion Plan
				Local Capital Outlay (1982 \$000)
Gen. Admin. Space (sq. ft.)	2,498	0.8 <sup>a</sup>	\$ 70 <sup>a</sup>	
Shop Space (sq. ft.)	5,280	1.6 <sup>a</sup>	40 <sup>a</sup>	
Sewage Treatment (gals.)	1,000,000	160 <sup>b</sup>	1.25 <sup>b</sup>	
Water Treatment (gals.)	4,000,000	150 <sup>b</sup>	0.48 <sup>a</sup>	
Water Storage (gals.)	1,000,000	150 <sup>b</sup>	0.43 <sup>a</sup>	
Parks (acres)	50	.01 <sup>a</sup>	26,000 <sup>a</sup>	
Gen. Gov. Personnel	45	0.142		

Source: Briscoe, Maphis, Murray, and Lamont, Inc., and B.Y. Analytics, January, 1983.

<sup>a</sup>Regional estimate, Colorado Cumulative Impacts Task Force (CITF), 1982.

<sup>b</sup>Based on going rate used by jurisdiction.

### 2.3.5 Fiscal

#### 2.3.5.1 Introduction

The projections of fiscal impact were made by projecting revenues and expenditures for each jurisdiction and alternative scenario. All fiscal projections were based on 1982 constant dollars. Fiscal impact was defined as the difference between the baseline (no action) conditions and the with-project conditions. This section outlines the procedures used to project revenues, expenditures, and net fiscal impact. The same procedures apply for each scenario.

A listing of the equations and input data used to project each revenue and expenditure category is contained in Appendix D.

#### 2.3.5.2 Forecasting Revenues

The procedure used to project revenues involved analysis of historical revenue flows and categorization of each revenue source for appropriate projection. Revenues were generally divided into four major groups:

- 1) Population-related revenues
- 2) Coal related revenues
- 3) Revenues not related to population
- 4) Property taxes

The coal related revenues are a subset of categories 3 and 4. The discussion of the coal related revenues identifies what revenues are included in each category.

Historical revenue flows were obtained from jurisdiction budgets for a three-year period, FY 1980 through FY 1983. Actual and estimated revenues were compiled by revenue source for FY 1980 and FY 1981, as were budgeted revenues for FY 1983. The historical data were analyzed to reveal possible trends and to establish a basis for projection. Based on the historical analysis, each revenue source was assigned to one of three categories.

The first category included revenue sources that could be expected to change in relation to changes in jurisdiction population. Examples of population-related revenues are sales and use taxes, licenses and permits, charges, and fines and forfeits.

Coal related revenues can be separated into five major categories:

- 1) Royalties (Federal, State, Crow)
- 2) Severance Tax
- 3) Property Tax
- 4) Gross Proceeds
- 5) Miscellaneous Tax

Only the first four categories were included in the forecast revenues. The miscellaneous tax includes items like black lung and resource indemnity taxes which are relatively minor and produce revenue to jurisdictions outside the study area. For these reasons that category was not forecast.

Royalties from coal production are a very major revenue source, particularly for the Crow Tribe. These royalties are based on coal production and the FOB price of the coal. The coal production estimates and value, by mine, were provided by the mining companies. The royalty rates applied were based on the current royalty agreements. This does not imply any expected results from future royalty negotiations.

The severance tax is a state revenue. The tax is currently 30 percent of the value of all coal mined in the county. The value is determined using the contract sales prices for each mine. The estimates of production and sales price were provided by the coal companies.

The real and personal property of the coal mines are a major portion of the county tax base. The value of the property for the existing mines was obtained from the county assessor. The taxable value of the equipment was assumed to remain constant over time. Also, if a mine increased production by any percentage, the value of its property was assumed to increase by that same percent. But if production decreases, except when the mine closes, the value was assumed not to change. No depreciation of equipment was assumed. Unless better information was provided, the taxable value of the property for the proposed mine was assumed to be consistent, on a per ton mined basis, to the average of the existent mines.

The gross proceeds of the coal mines provide a large portion of the tax base of the county. The gross proceeds is 45 percent of the value of the coal mined in the county. The estimated coal value was provided by the coal companies. The gross proceeds amount is then added to the tax base and taxed as property.

The third category was nonpopulation-related revenues. This category included one-time revenues, as well as those revenue sources whose predictability was dependent upon outside funding policies. Nonpopulation-related revenues were projected to remain constant at existing levels, remain constant at a fraction of current levels, or become zero at some future date. Examples of nonpopulation-related revenues are federal and state grants, federal revenue sharing, interfund transfers, and beginning cash balances.

The final category was property taxes. The property tax yields of counties, municipalities, and school districts were projected, based upon projections of district assessed valuation. A constant tax rate (equal to the FY 1983 rate) was assumed. Assessed valuation was projected for each property category, based upon analysis of historical data.

#### 2.3.5.3 Forecasting Expenditures

Expenditures were divided into two projection categories: (1) operations and maintenance, and (2) capital outlay.

##### Operations and maintenance

Expenditures for operations and maintenance were projected in a manner similar to that used to project revenues. Three years of historical expenditures were analyzed to identify trends and aid in the selection of appropriate projection techniques. Based on the analysis of historical data, each category of operations and maintenance expenditures was identified as population-related or nonpopulation-related. The population-related expenditures were projected with per capita multipliers, based on the FY 1983 budget base. Nonpopulation-related expenditures were projected to remain constant at existing levels or projected as a fraction of existing levels. Examples of nonpopulation-related O & M expenditures include payment of bond principal and interest and expenditures of state and federal grants.

For school districts, population-related O & M expenditures were projected on a per student basis; nonpopulation-related expenditures were projected as described above.

### Capital outlay

Two types of capital expenditures were projected. The first type, recurring capital outlay, was projected from analysis of historical capital expenditures and includes capital expenditures expected to continue on an annual basis over the projection horizon. Examples include ongoing street repair and utility expansion and repair. The second type is nonrecurring capital outlay, which includes the large infrastructure projects required when existing facilities reach capacity. These capital outlays are population-driven and were projected using the approach described in Section 2.3.4.4.

#### 2.3.5.4 Net Fiscal Balance

Net fiscal balance is defined as the difference between total revenues and total expenditures. Both annual and cumulative fiscal balances were calculated. The annual fiscal balance shows the difference between revenues and expenditures for each budget year; the cumulative fiscal balance is a "running total" of the annual balances. A positive net fiscal balance implies that revenues exceed expenditures; the excess may be used either to improve services beyond existing levels or to decrease tax rates. A negative net balance indicates that revenues are not sufficient to cover all expenditures in a particular year and that alternative means of financing must be found or that services must be reduced.

It should be noted that the fiscal balance projections only show the comparison of future public needs with public revenues under existing policies governing the income and expenditure patterns of each jurisdiction. They do not attempt to reconcile projected revenue with expenditures to produce a "balanced budget," nor address the actual financing mechanisms used by the jurisdictions to support government operations and building programs.

### Regression analysis: city of Sheridan

Regression analysis was used in an attempt to quantify the relationship between changes in population and changes in particular revenue sources and expenditure categories for Sheridan. It was felt that if regression analysis proved useful for revenue and expenditure projections for Sheridan, it could also be used for the other jurisdictions in the study.

Historical revenue and expenditure data were compiled from city budgets and fiscal reports for the period FY 1980 through FY 1983. The revenue data covered FY 1981 through FY 1983, while the expenditure data covered the entire four-year period. The data were grouped into categories and adjusted to a 1982 constant dollar base using the municipal cost index.

Ordinary least squares regression was used to estimate equations for each of the revenue and expenditure categories shown in Table 2.3.5.4-1. The revenue and expenditure data (adjusted for inflation) were regressed on jurisdiction population, the independent variable.

Results from the regression analysis were generally poor, with many of the estimated coefficients statistically insignificant or of the wrong sign. The reasons for the poor results could include: inability to account for appropriate local inflationary factors for each year of the historical period; use of actual, estimated, and budgeted data; changes in accounting and budgeting practices; and use of only three or four data points in the time series.

Because the regression analysis produced equations that were judged unreliable, per capita relationships, based on the most recent budget data, were used to generate the projections.

TABLE 2.3.5.4-1  
Regression Results  
Revenues and Expenditures

Category	Constant	Population	R <sup>2</sup>
REVENUES			
Property Tax	-710.7 (-1.20147)	64.30 (1.72653)	.4976
Licenses & Permits	864.51 (2.2353)	-39.09 (-1.5808)	.4284
Sales Taxes	3,746.43 (5.2425)	-170.78 (-3.7371)	.8664
Use Taxes	64.09 (0.0938)	12.63 (0.2890)	.8458
Gas Taxes	542.06 (2.2367)	-23.522 (-1.5178)	.3946
Cigarette Tax	681.30 (4.1448)	-32.22 (-3.06593)	.8077
Charges for Services	1,627.50 (12.1069)	-63.01 (-7.3304)	.9635
Fines & Forfeits	499.99 (3.4659)	-22.91 (-2.484)	.7210
Miscellaneous (Gen.)	551.41 (0.10225)	-16.53 (-0.0479)	.995
Sewer Fees	291.15 (0.9046)	-0.692 (-0.0336)	.998
Sewer Taps	26.727 (2.295)	-1.365 (-1.8327)	.5473
Water Sales	1235.28 (3.8079)	-36.56 -1.7625)	.5130
Water Taps	42.17 (10.7899)	-1.49 (-5.9847)	.9457
PIF	1,291.86 (0.6430)	-62.759 (-0.4851)	.6146
Misc. (Water)	970.42 (0.6172)	-55.85 (-0.5556)	.5283

Source: B.Y. Analytics, January, 1983.

### 2.3.6 Transportation

This section describes the methods used to analyze rail and road transportation impacts.

#### 2.3.6.1 Rail Transportation

Rail transportation impacts due to the proposed actions would occur from increased unit train traffic on branch and mainlines of the Burlington Northern Railroad (BN). The analysis assumes that the BN east-west mainline in Montana and the mainline from Huntley south through Big Horn County and Sheridan and east to Campbell County are the elements of the railroad network affected by the proposed Decker area mines.

Where available, forecasts of future rail traffic on the BN mainlines have been used for baseline traffic forecasts. Where such forecasts were unavailable, present traffic levels were conservatively assumed to remain constant into the future.

In order to obtain rail traffic forecasts with each of the proposed actions, and cumulatively, individual mine production was converted to unit train equivalents by dividing annual production by 10,000 tons (average unit train capacity). Table 2.3.6.1-1 presents the annual and weekly number of unit trains required to ship the entire production of each of the three mines out of the area.

#### 2.3.6.2 Road Transportation

With the exception of roads on the Crow Reservation, the impacts of the proposed actions on vehicular traffic and roads in the study area is to be determined by the Montana Highway Department. Basic data and forecasts upon which this assessment can be made have been furnished to the department by the consultants. The methods to be used in the impact analysis are not known at this time.

Regarding impacts to roads on the Crow and Northern Cheyenne reservations, the principal consideration has been the home-to-work and commercial traffic that would use the proposed new road from near Lodge Grass, along the Owl Creek drainage, to the Youngs Creek Mine, and finally connecting to Federal Aid Secondary (FAS) 1706 (Wyoming 338) in Wyoming, north of Sheridan. If constructed to a suitable standard, it has been assumed that this shorter route would capture any traffic from the north and northwest (Hardin and Billings) to the Decker area mines. The primary component of this traffic would be the home-to-work commuters from the Crow Reservation and Hardin. These commuters have been translated into vehicles by assuming an average of two commuters per vehicle.

While the potential traffic volume that would be reached during the study period on this road would be well below its design capacity, it would represent both a new land use on the reservation and an additional accident hazard.

In addition, traffic increases on FAS 314 between Busby and Kirby due to the proposed actions are also analyzed. Improvements in this road are not assumed in the baseline scenario. However, they are assumed in the impact scenarios, where traffic increases have been related directly to the increase in Decker area mine employment of Northern Cheyenne. Again, a commuter ridership factor of two has been assumed.

At present, the primary commercial traffic access to the Decker area mines has been via Sheridan for traffic from the south and east (along I-90) and via Ranchester/Acme for traffic from the north and west (from Billings). It is likely that this latter traffic would be diverted along a newly constructed Owl Creek road to the Decker area. However, it is unlikely that improvement of FAS 314 would result in any important increase in mine-serving commercial traffic through the Northern Cheyenne Reservation.

TABLE 2.3.6.1-1  
Decker Area Mines  
Mine Production and Unit Trains by Selected Years

Year	Production (MMTPY)	Unit Trains <sup>a</sup> per Year	Unit Trains <sup>a</sup> per Week
KME Mine			
1987	2	200	4
1989	3	300	6
1990-2006	3	300	6
Conso1 Level 1			
1987	2	200	4
1988	4	400	8
1989	6	600	12
1990-1995	8	800	16
Conso1 Level 2 - Possible Expansion			
1996	10	1000	20
1999-2013	16	1600	31
Youngs Creek			
1987	4	400	8
1989-2013	8	800	16
Youngs Creek - Tanner Creek Expansion			
1993	10	1000	19
1998-2015	10	1000	19

Source: Mountain West Research-North, Inc., 1982.

<sup>a</sup>Assuming 10,000 tons per unit train.



### 2.3.7 Regional and Urban Recreation

This section presents the procedures used to assess the following:

- 1) Existing urban and regional recreation facilities/opportunities
- 2) Demands for various recreation activities derived from participation rates
- 3) Future needs based on the capacity of present facilities and population projections

Following those three steps, projected needs were analyzed to determine the magnitude of impacts and the need for mitigation measures.

Two categories of outdoor recreation are considered in this section: regional and urban.

Regional recreation pertains to dispersed and/or developed site activities enjoyed by area residents on large tracts of public land such as the Bighorn National Forest. Urban recreation refers to city, county, school, and public and/or quasi-public park acreages and recreation facilities within city limits or within reasonable reach of unincorporated towns. (The baseline and with-project discussions of urban recreation appear under the text discussions of facilities/services as they are defined by jurisdictional identification and boundaries.)

#### 2.3.7.1 Constraints and Assumptions

Only public sector areas/facilities were considered in the projections and subsequent impact analyses for regional and urban recreation.

As extensive, primary research to obtain site-specific recreation data was beyond the scope of work for this task, secondary data were utilized for some portions of the analysis. Statewide recreation participation data by activity were obtained from secondary sources and were assumed applicable to both Indian and non-Indian populations of Big Horn and Sheridan counties.

In the absence of time series data, it was assumed that the available participation rate data for 1979 in Montana was representative of participation rates in various activities for every year of the study period. In Wyoming, where participation rate data existed for the year 1977 and were projected for 1995, it was assumed that a linear relationship existed between these data for all years of the study period.

In urban recreation situations, where population-based standards suggested particular facility or acreage needs which were not endorsed by local officials, adjustments were made to reflect the officials' assessments of the existing situation.

#### 2.3.7.2 Existing Opportunities/Facilities Inventory

Both regional and urban inventory data were collected primarily from secondary sources and personal or telephone contact with representatives of managing agencies. The information obtained included historical and current use patterns for existing resources as well as present and future plans for development and operations. A review of management plans was made to determine if an expansion of services was anticipated; if additional use could be accommodated, controlled, and managed; and whether additional resources were available to handle increased use. This, and information about other issues of resources overuse, misuse, abuse, decreased access, visitor satisfaction, and funding was obtained, updated, and verified in conversations with management officials and local user/interest groups.

The regional recreation areas included in the inventory were not confined to the boundaries of the two-county study area. National forests and public recreation areas were considered according to their

accessibility and regional significance as unique, popular recreation sites. Major historical sites within the study area were listed in the inventory, but were not included in the supply/demand analyses because it was assumed that most visitors to these sites would be tourists making only brief, recreational stops while en route to other destinations.

Urban recreation inventories consist of the city, county, state, or federal public sites that are located within the limits/boundaries of the taxable jurisdictions (school districts, counties, cities). Sites on the Crow Reservation were included if they were located in or within close proximity to an urban area or population center.

#### 2.3.7.3 Standards

Standards were used for both urban and regional analyses in an effort to quantify recreation needs. An overall park acreage standard of ten acres per 1,000 people was used to assess urban needs. A community's existing park acreage (including developed recreation facilities) was compared to the ten acres per 1,000 standard to determine its adequacy under baseline and with-project forecast conditions. Where present acreages were inadequate for given future populations, it was recommended that additional park acreage/facilities be added to the community.

Statewide participation rate data for Wyoming and Montana constituted the standards used for regional outdoor recreation (see Appendix F). Ideally, recreation demand forecasts should be generated from data particular to the residents of the study area. Such data were unavailable, and primary research to establish them was beyond the scope of this report. Hence, it was assumed that statewide figures for percent of population participating and the average number of days of participation in an activity per year were representative of the study area population.

#### 2.3.7.4 Description of Forecasting Procedures

The following equation, derived from methods formulated by Carlson and Phillips (1981), was used to project demand in recreation days for regional outdoor recreation:

$$D_{ij} = P_i \times R_{ij} \times P_{ij}$$

Where:

$D_{ij}$  = Recreation demand in participation days for year  $i$  and activity  $j$

$P_i$  = Community population in year  $i$

$R_{ij}$  = Average recreation demand per individual for year  $i$  and activity  $j$  (in participation days)

$P_{ij}$  = Proportion of population in community participating in activity  $j$  in year  $i$

Community population estimates for baseline and with-project scenarios were generated by Mountain West Research-North from the economic/demographic model. Participation rate data (average number of participation days by activity and percent of population participating) in Wyoming were available for years 1977 and 1995<sup>1</sup> for the following activities: hunting, fishing, camping, picnicking, river floating, power boating, snowmobiling, cross country skiing, downhill skiing, horseback riding, and hiking.

The 1977 data and 1995 forecasts provided the basis for a linear trend projection used to determine annual rates of change for each activity, thus providing average participation and percent population figures for each year of the forecast period -- 1983-2015. The participation rate data for each activity per year were then entered into the equation with the population forecast, resulting in a number of recreation days per activity by year and county.

<sup>1</sup>See Carlson and Phillips 1981 for a complete discussion of their assumptions and forecast methodologies for 1977 and 1995 estimates.

In Montana, the most current participation rate data available were for 1979. These data applied to the same activities described for Wyoming (Montana information included four-wheeling). In order to project recreation days by activity for the study period, the 1979 average number of participation days and percent population participating were multiplied by population estimates for each year of the forecast period, as though the participation rates were constant. The assumption that the participation rate figures for 1979 are valid for future years resulted in recreation day totals that paralleled fluctuations in population over time.

Projections were made for each year up to the year 2000, and for every five years thereafter to the end of the forecast period (2015); these are included in Appendix F. For baseline and with-project scenarios, the recreation impact discussions focused on 1990, 2000, and 2010 because --

- 1) Construction and operation work forces would reach their peaks by then, and
- 2) The ten-year periods provided even intervals for examining the percentage change in the number of recreation days of a single activity under baseline conditions.

#### 2.3.7.5 Analysis of Impacts

The baseline forecast for regional outdoor recreation outlined numbers of recreation days per activity for the forecast period. With-project forecasts did the same for each of the mining scenarios including the cumulative scenario. Because it was impossible to say exactly where people would pursue each of the activities listed (without extensive surveys beyond the time and budgetary limitations of this task), it was necessary to evaluate the total recreation demand for all activities compared to management agency estimates of total recreation opportunities in the region.

Thus, for example, the total number of recreation days for all regional-type activities during the year 1990 for both baseline and with-project forecasts were compared to the total capacity of regional recreation areas expressed in recreation days. Although Forest Service plans (which outlined carrying capacities of recreation areas) and this study (which projected recreation demand) were done for differing purposes, the basic definition of recreation days was the same. Therefore, although data from two different sources cannot be directly compared, general conclusions can be drawn. Section 4.3.8 describes the problems associated with this broad approach. Where possible, current management findings and future planning objectives were used to help assess problem areas.

The baseline and with-project forecasts of impacts on urban recreation are determined by utilizing the population increases by jurisdiction and applying a standard of ten acres per 1,000 population. Where less than 1,000 people are residing or are anticipated to reside, fractional portions are forecast.

#### 2.3.8 Land Use

##### 2.3.8.1 Overview

This section outlines the procedures used in assessing the future land use implications of development in the area of site influence, both with and without the proposed actions. Rapid changes in land use associated with population and employment growth may result in land use conflicts such as urban sprawl, inadequate provision of public and recreation facilities, and the possible conversion of prime agriculture land for urban uses. Communities may not have established policies to guide rapid development or evaluate development proposals in light of rapid growth. The purpose of this study was to assess the land use impacts associated with the projects.

The land use impacts considered in this section are those stimulated by employment and population growth associated with the proposed actions as well as direct land uses by those actions. Assessment of

future land use impacts focuses on the changes in employment, population, and housing that will occur in the two-county study region both with and without the proposed actions. Comparing the future land use with the project and the future without the project results in the net determination of changes in land use associated with the projects.

#### 2.3.8.2 Issues

Methodological issues include the lack of both historical and current data on land use in the impacted communities and counties. Land use planning is a recent addition to the counties and a number of the study area's communities. Additionally, the small, stable land use base of many communities does not provide adequate information for predicting future development.

The dearth of existing land use data for the counties and communities in the study area limited types of land use considered in this report. Where considerable acreage information was available in one district or for one land use classification, it was totally lacking in another. It was difficult to find the common denominators that would permit a meaningful presentation and analysis. Thus, the categories of land use found to be most appropriate and informative for this study are urban residential, rural residential, and commercial. These classifications are considered in gross acres that include transportation and utility right of ways.

#### 2.3.8.3 Approach

The approach outlined below was applied to both the baseline (no action) alternative and all with-project alternatives.

- 1) The historical and current status of existing and vacant land, by type, for the major urban centers and Big Horn and Sheridan counties were determined. An existing environment based on field research, key informant interviews, and secondary sources was produced. In addition, the county and local land planning situation and goals and objectives, and document effective regulatory mechanisms were researched.
- 2) Population, commercial employment, and housing demand from economic/demographic data for baseline and with-project forecasts were derived.
- 3) Each category of land use on a county-wide basis was analyzed, with focus on peak year demands as the most conservative estimate of future land requirements.

The results of the above-mentioned approach are discussed in subsequent sections of this report.

#### 2.3.8.4 Urban Residential Estimate

Housing stock data were used to establish existing and vacant acreages for both urban and rural residential classifications.

Housing lot sizes vary by location, planned density, and county regulations. Within incorporated city limits in Big Horn and Sheridan counties, the average lot size per dwelling unit tended to be slightly smaller than for urban residential dwellings outside, but surrounding, the city. The larger urban residential lot sizes averaged 0.2 acre per dwelling in the study area. This figure was used as the standard in calculating future urban residential acreage needs for both Big Horn and Sheridan counties; it is conservative in comparison to ones applied in other, similar areas of the country.

Residential acreage needs were calculated by multiplying this standard (0.2 acres) times the housing demand forecast for each year of the study period. For land use purposes, Big Horn County housing demand

was broken out by city of Hardin (non-Indian and Indian) and rest-of-county (excluding the reservations). Thus, the urban residential analyses apply only to Hardin, while rural residential analyses apply to the rest-of-county which includes several townsites throughout the county. In Sheridan County, urban residential lands were defined as the city of Sheridan and the greater Sheridan area, as mapped for the economic/demographic model. The remainder of the county was considered to be rural residential land, although several incorporated and unincorporated towns are included.

The acreage projections for baseline conditions were compared to those forecast for each of the alternative scenarios, by year, to establish net impacts. The amount of land demanded for residential use was then compared to the amount of planned residential vacant land available for that use. Where acreage needs exceeded the land allotted to residential use, impacts were considered significant.

#### 2.3.8.5 Rural Residential Estimate

The approach used to calculate these estimates was the same as described under the previous section except that the standard differed. Based on variations in the minimum lot size requirement for each county, separate standards were used.

Minimum lot size in Big Horn County ranges from 0.5 acres, where either a well or septic tank is necessary, to 1 acre, where both a well and septic tank are needed. Comparable figures for Sheridan County are one and two acres, respectively. Consequently, an average standard of 0.8 acres per dwelling unit was used for Big Horn County rural residential land use, while 1.5 acres was used for Sheridan County.

In the analysis, it was impossible to quantify or define available rural acres; therefore, no attempts were made to determine the significance of impacts. However, future rural residential acreage demands were included as a percentage over baseline.

#### 2.3.8.6 Commercial Estimate

Commercial employment numbers were isolated from employment figures for the two counties. Then, a standard of 0.02 acres per employee was multiplied times the workers for each year of the forecast. Baseline and with-project five-year tables were constructed showing the projected total acreage needs for each county.

As with the rural residential classification, impacts were discussed only as a percentage over baseline. Data limitations made it impossible to evaluate the significance of impacts.

### 2.3.9 Mitigation

#### 2.3.9.1 Introduction

Mitigation of anticipated negative or problem impacts and optimization of the opportunities presented by the development of the mines are goals difficult to achieve without the input of all participants -- the companies proposing development of the mine, local government staff and elected officials, and state and federal agencies. It is the local governments' responsibility to determine where and how new development may be accommodated. Public and private cooperation is essential for timely provision of services and facilities to accommodate people moving into an area without unduly burdening existing residents.

The mitigation program should be supported by all the affected parties. This requires an objective evaluation of what changes are needed and how to accomplish these changes. This may include policy

changes, new or expanded facilities, new or expanded programs, and support from third party sources of funding (industry, state government and federal government). Not all support need be in the form of grants. Guarantees, advance purchase of services and loans are some of the other ways in which up front financing short-falls can be overcome. Leveraging of funds and agreement on what measures are required, and when, will permit a cooperative approach to mitigation among the interested parties -- replacing what is too frequently an adversarial relationship. For example, technical assistance from the companies or state agencies to local governments may permit mitigation of what otherwise appears to be a major hurdle.

With the high degree of uncertainty regarding the start-up dates of the proposed Decker area mines, it is inappropriate to be specific about many of the mitigation actions that might be required. As the situation changes, so will the solution. For example, interest rates may continue to decline and cease to be an important factor in the provision of affordable housing. On the other hand, rates could once again increase and become a major barrier to housing for the nonlocal employees who move into the area to work at the mines or on related activities.

Finally, any mitigation program must be flexible. As development activity occurs, both the projected impacts and the communities' capacity to respond are likely to change, making new strategies desirable and/or feasible. A cooperative, development and mitigation management process will be essential. As the time for actual development draws near, the specific programs can be defined and agreed to by the concerned parties jointly. Local land use permits are a key mechanism for ensuring that this occurs. Except for the leverage they provide, state and federal attempts to achieve the sufficient mitigation program, detail, and cooperation with local governments have been generally ineffective.

#### 2.3.9.2 Impact Mitigation and the Decker Area Mines

The essence of the Decker area mines mitigation problem is that it concerns multiple projects with highly uncertain implementation schedules and a mismatch between the Montana jurisdictions in which the mines would be located and the Wyoming jurisdictions in which most of the socioeconomic impacts occur. the basic method that must be applied for the design and implementation of effective measures to mitigate adverse impacts -- particularly given the nature of the anticipated impacts from the proposed actions -- is the development of a cooperative, participatory relationship among the mining companies, local governments, and state/federal regulatory authorities. Up to the present time, there has been no opportunity for such an approach to be developed as part of this study. Prior to the initiation of a participatory mitigation program development process, it is not possible to design or recommend a comprehensive set of appropriate mitigation measures. Specific measures may, however, be identified. However, it is possible to recommend general mitigation principles that should guide the later specification of individual measures.

In view of the above, mitigation issues are addressed in this report on two levels. First, the implications for mitigation measures of site-specific impacts are summarized for each scenario, including the cumulative. For all of the reasons previously cited, specific mitigation measures are not recommended in the body of the report. Second, a working paper entitled "Generic Mitigation Program" has been prepared as an addendum to this report. This paper describes the general process and guidelines to be followed in developing a mitigation program. It also presents alternative mitigation measures, including a discussion of advantages and disadvantages, that should be considered once the management process is underway.

### 3. EXISTING ENVIRONMENT





### 3. EXISTING ENVIRONMENT

#### 3.1 Introduction

This chapter describes the existing social and economic environment of the Decker study region. The region, its counties, and its subcounty areas are each discussed. More complete presentations are made for those subcounty areas which would be significantly affected by the mines included in the assessment. Topical areas include population, economy, social life and cultural diversity, housing, facilities/services, fiscal, transportation, outdoor recreation, and land use.

When reading Chapter 3, it is important to note that the population and economy sections describe 1970 and 1980 U.S. Census figures, not the population and employment figures that are used in the forecasts presented in subsequent chapters. This apparent discrepancy is explained by the fact that Crow Indian population figures are revised upward, as shown in Table 3.1-1, to account for an undercount of the Crow population in the 1980 census. These changes have not been incorporated into Chapter 3 because (1) no detailed information was available on the characteristics of the undercounted Crow population, and (2) the chapter focuses on change between 1970 and 1980 and no information was available on the accuracy of the Crow Indian counts in 1970. Hence, the discussion presented in Chapter 3 should be interpreted in light of the agreement that the Crow Indian population was undercounted in the 1980 census.

Table 3.1-1 also shows that the 1980 census count of the non-Indian population in several of Big Horn County's allocation areas has been adjusted for incorporation into the economic/demographic model that is used in making population forecasts. These adjustments are too complex to be explained here, but are described in more detail in Section 2.3.

Chapter 3 is organized into five sections. Section 3.2 presents a regional overview. Section 3.3 presents information about Big Horn County and its subcounty areas. The Crow Indian Reservation and Northern Cheyenne Indian Reservation are discussed in sections 3.4 and 3.5, respectively. Section 3.6 presents information about Sheridan County and its subcounty areas.

#### 3.2 Regional Overview

This section presents a general description of the Decker study region and an overview of its population, economy, social life and cultural diversity, housing, facilities/services, fiscal, transportation, outdoor recreation, and land use situations.

##### 3.2.1 General Description

The Decker study region includes Big Horn County in southeastern Montana and Sheridan County in northern Wyoming. The region is composed of semiarid plains country and is bordered to the west in Sheridan County by the Bighorn Mountains. Its major communities include Sheridan, a trade/government center for a wide area in northern Wyoming, and Hardin, the Big Horn County seat in Montana. The region also encompasses, in Montana, the greater portion of the Crow Indian Reservation, including Crow Agency, the seat of tribal government.

A major thoroughfare in the region is Interstate 90, which connects Hardin and Sheridan with Billings to the north and Gillette to the east. (Billings is the largest trade center in Montana, and most of the study region is within its trade area.) Other major highways in the study area include U.S. Highway 212,

TABLE 3.1-1

## 1980 U.S. Census and Revised Population Counts

Place	1980 Census <sup>a</sup>			Revised Count <sup>b</sup>		
	Total	Crow Indian	Non-Crow	Total	Crow Indian	Non-Crow
Study Region	36,144	4,303	31,841	37,220	5,375	31,845
Big Horn County	11,096	4,303	6,793	12,180	5,375	6,805
Hardin and Hardin Area	4,249	463	3,786	4,193	583	3,610
Crow Reservation	5,645	3,840	1,805	6,758	4,792	1,966
Crow Agency and Northeast Area	2,100	1,696	404	2,564	2,144	420
Lodge Grass and Southeast Area	2,136	1,438	698	2,647	1,827	820
Central Area	937	343	594	958	362	596
West Area	472	363	109	589	459	130

Sources: <sup>a</sup>Department of Commerce, U.S. Bureau of the Census, 1980 Census Preliminary Population and Housing Unit Counts, January 1981.

<sup>b</sup>Mountain West Research-North, Inc., 1982.

which extends east of Crow Agency to Lame Deer and Ashland, and U.S. Highway 14, which runs in an east-west direction through Sheridan County.

The proposed mines included in this study would be located in the Decker, Montana area about 15 miles north of Sheridan, Wyoming. Because of the existing road network in the area, most workers at the proposed mines would reach them via route 338 from the Sheridan area to the south. Big Horn County residents who would work at the mines would probably travel south to the Sheridan area and then turn north on route 338 to reach the mines. Development of the Youngs Creek Mine could change these commuting patterns by stimulating construction of a new, more direct road from Lodge Grass to the mining area.

The remainder of this section is divided into eight parts. Section 3.2.2 describes the region's population and current economy. Section 3.2.3 describes social life and cultural diversity in the area. Housing conditions are described in Section 3.2.4. Facilities/services and fiscal conditions are described in sections 3.2.5 and 3.2.6, respectively. Section 3.2.7 presents a description of the region's transportation networks. Finally, sections 3.2.8 and 3.2.9 discuss the area's recreation and land use patterns.

### 3.2.2 Population and Economy

#### 3.2.2.1 Population

After declining from about 30,000 people in 1950 to about 28,000 people in 1970, the region's population grew dramatically to over 36,000 people in 1980. As shown in Table 3.2.2.1-1, these trends were dissimilar to those exhibited by the nation as a whole. While most of the new employment in the area was stimulated by mining and energy-related growth in the Decker area of Montana, many of the new jobs and most of the population growth occurred in the Wyoming portion of the region.

As shown in Table 3.2.2.1-2, about 64 percent of the total regional population change between 1970 and 1980 can be attributed to in-migration, particularly during the period of rapid growth from 1976 to 1979. As shown in Table 3.2.2.1-3, over the 1970 to 1980 period, the percentage of the region's population in the working age cohorts (16-64) remained relatively constant at about 60 percent. However, the number of persons of working age increased by 5,572 people. Over the period, the largest increases occurred in the 18-44 age category, reflecting the large in-migration (and retention of younger adults for energy-related employment).

As shown in Table 3.2.2.1-4, the region's average household size has been above the national average since 1960. This difference can be attributed primarily to the larger household sizes present on the Indian reservations in the study region. However, the average household size in the region has paralleled the national trend by declining significantly over the 1960 to 1980 period.

#### 3.2.2.2 Economy

##### Overview

The economy of the region has traditionally been based on agriculture, with hardin and Sheridan serving as the primary trade centers. Table 3.2.2.2-1 presents employment by industry for the 1960 to 1980 period. Agricultural employment in the region has paralleled the national trend and declined by almost 800 workers between 1960 and 1980. Employment in mining increased by almost 1,600 workers between 1970 and 1980. This increase, coupled with mining-related and induced employment in the construction, TGPU, services, FIRE, and trade sector, has revitalized the regional economy.

TABLE 3.2.2.1-1

Population Growth  
Decker Study Region, United States  
1940-1980

Population	Region	United States
Population 1940	29,674	132,165,129
Percent change 1940-1950	1.1	14.5
Percent average annual growth 1940-1950	0.1	1.4
Population 1950	30,009	151,325,798
Percent change 1950-1960	-3.3	18.5
Percent average annual growth 1950-1960	-0.3	1.8
Population 1960	28,996	179,323,175
Percent change 1960-1970	-3.7	13.3
Percent average annual growth 1960-1970	-0.3	1.3
Population 1970	27,909	203,211,926
Percent change 1970-1980	29.5	11.5
Percent average annual growth 1970-1980	3.0	1.1
Population 1980	36,144	226,504,825

Sources: U.S. Department of Commerce, Bureau of the Census, 1980 Census Preliminary Population and Housing Unit Counts, January 1981; U.S. Department of Commerce, Bureau of the Census, 1970 Census of the Population, Montana, Wyoming, United States, Tables 17, 35, 48; U.S. Department of Commerce, Bureau of the Census, 1950 Census of the Population: Characteristics of the Population, Montana, Wyoming, United States, Table 41.

Note: These figures do not reflect the undercount of Crow Indians by the 1980 Census summarized in Table 3.1-1.

TABLE 3.2.2.1-2

Components of Population Change  
Decker Study Region  
1970-1980

Year	Population	Change		Components of Change			
		Number	Percent	Births	Deaths	Net Migration	Net Migration Percent
1970	27,909						
1971	28,800	891	3.2	507	319	203	2.5
1972	29,228	428	1.5	459	361	330	1.5
1973	29,290	62	0.2	484	357	-65	-0.2
1974	29,972	682	2.3	466	361	577	2.0
1975	30,908	936	3.1	497	344	783	2.6
1976	30,640	-268	-0.8	670	336	-602	-2.0
1977	32,705	2,065	6.7	815	330	1,580	5.1
1978	34,374	1,669	5.1	808	354	1,215	3.7
1979	35,535	1,161	3.4	820	308	649	2.0
1980	36,144	609	1.7	891	355	73	0.2

Source: Department of Commerce, U.S. Bureau of the Census, Population Projections, P-25 series, annual report.

Note: These figures do not reflect the undercount of Crow Indians by the 1980 Census, as summarized in table 3.1-1.

TABLE 3.2.2.1-3  
Population by Age and Sex  
Decker Study Region  
1970 and 1980

Sex and Age Group	1970	Percent of Total	1980 <sup>a</sup>	Percent of Total	Average Annual Growth 1970-1980
Total Population	27,909	100.0	36,144	100.0	2.6
0- 5	2,649	9.5	3,956	10.9	4.1
6-15	5,898	21.1	6,000	16.6	0.2
16-24	3,677	13.2	5,575	15.4	4.2
25-44	5,832	20.9	10,413	28.8	6.0
45-64	6,323	22.7	6,315	17.6	0.0
65 and Over	3,530	12.6	3,885	10.7	1.0
Male Population	13,876	49.7	18,053	49.9	2.7
0- 5	1,388	5.0	2,052	5.6	4.0
6-15	2,984	10.7	3,022	8.4	0.1
16-24	1,801	6.5	2,773	7.7	4.4
25-44	2,870	10.3	5,397	14.9	6.5
45-64	3,161	11.3	3,140	8.7	-0.1
65 and Over	1,672	5.9	1,669	4.6	0.0
Female Population	14,033	50.3	18,091	50.1	2.6
0- 5	1,261	4.6	1,904	5.3	4.2
6-15	2,914	10.4	2,978	8.2	0.2
16-24	1,874	6.7	2,802	7.8	4.1
25-44	2,962	10.6	5,016	13.9	5.4
45-64	3,162	11.3	3,175	8.8	0.0
65 and Over	1,858	6.7	2,216	6.1	1.8

Source: U.S. Department of Commerce, Bureau of the Census, Census of the Population: Characteristics of the Population, Montana, Wyoming Table 35.

Note: These figures do not reflect the undercount of Crow Indians by the 1980 Census, as summarized in Table 3.1-1.

TABLE 3.2.2.1-4

Average Household Size  
Decker Study Region and the United States  
1960, 1970, 1980

Year	Region	United States
1960	3.47	3.29
1970	3.26	3.11
1980	2.98	2.75

Source: U.S. Department of Commerce, Bureau of the Census, 1980 Census Preliminary Population and Housing Unit Counts, January 1981; U.S. Department of Commerce, Bureau of the Census, 1970 Census of the Population, Montana, Wyoming, United States, Tables 22, 36, 54; U.S. Department of Commerce, Bureau of the Census, 1960 Census of the Population: Characteristics of the Population, Montana, Wyoming, United States, Tables 28, 49, 62.

Note: These figures do not reflect the undercount of Crow Indians by the 1980 Census, as summarized in Table 3.1-1.

TABLE 3.2.2.2-1

Employment by Industry by Place of Residence  
Decker Study Region  
1960, 1970, 1980

Industry	Employment		Percent Total Employment		Percent Change	
	1960	1970	1970	1980	1960-1970	1970-1980
Ag., Forestry, & Fisheries	2,159	1,683	17.1	8.9	-22.0	-19.2
Mining	86	182	1.9	11.2	111.6	835.2
Construction	818	592	6.0	9.9	-27.6	154.4
Manufacturing	509	617	6.3	2.8	21.2	-32.1
TCPU <sup>a</sup>	679	587	6.0	7.4	-13.5	91.5
Wholesale & Retail Trade	1,794	2,116	21.5	19.1	17.9	37.0
FIRE <sup>a</sup>	286	276	2.8	3.8	-3.5	110.9
Services	2,157	2,335	23.8	30.4	8.3	97.3
Government	991	1,438	14.6	6.4	45.1	-32.3
TOTAL EMPLOYMENT	9,479	9,826	100.0	100.0	3.7	54.3

Source: U.S. Department of Commerce, Bureau of Census; Mountain West Research-North, Inc., Sept. 1982.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.



Table 3.2.2.2-2 presents the region's employment by sector over the last decade. As shown, total employment grew from 11,962 workers in 1970 to 17,496 workers in 1980, an increase of 46 percent. In 1970, agricultural employment represented 17 percent of the total. By 1980, it only represented 12 percent of the total. Mining and TCPU employment grew from 6 percent of total in 1970 to 11 percent in 1980. Manufacturing employment fell from 6 percent to 3 percent of total during the decade, while construction employment increased from 5 percent to 9 percent of total.

The region was split 46 percent and 54 percent between basic and nonbasic employment in 1980, as shown in Table 3.2.2.2-3. In terms of basic employment, agriculture was the most important sector, with 24 percent of the total. It was followed by mining with 17.5 percent of the total and then by services, government, trade, and construction, respectively. Nonbasic employment was dominated by trade, government, and services, reflecting Sheridan's position as a second-order trade center and the governmental infrastructure associated with the two Indian reservations.

As Table 3.2.2.2-4 shows, the region's labor force grew by 50 percent. The region's labor force participation rate increased from 42 percent in 1970 to 50 percent in 1980. The regional increase in the labor force participation rate was greater than that for the nation during the 1970s. Over the last ten years, the regional unemployment rate has averaged 4.7 percent.

#### Existing commercial establishments

Table 3.2.2.2-5 presents estimates of existing commercial establishments in Sheridan and Big Horn counties that were derived from the business directories of October 1982 telephone books. It is important to note that commercial establishments are different from commercial opportunities, which represent the total number of establishments that could be supported by the region's population. It is also important to note that the businesses included in the list were only those that serve the local population. Hence, it focuses on the retail, service, and finance-insurance-real estate economic sectors and does not include commercial establishments that serve the basic industries of the local economy.

Crow commercial development. While the number of commercial establishments elsewhere in the study area generally corresponds to the population and income levels of each local trade area, the number of businesses on the Crow Reservation is well below the level that would be expected given its population and income characteristics. In addition, only a limited number of Crow entrepreneurs are active in the region. According to October 1982 information, Crow commercial establishments consisted of two service stations, two eating and drinking places, three small grocery/general merchandise stores, and one motel/campground, all of which were located in or near Crow Agency.

If Crow Indians were employed by new mines in the area, or if they were to receive substantial dividends from a severance tax imposed by the Tribe, then the potential for new population-serving commercial establishments would increase. This section examines the degree to which Crow Indians are interested in and/or able to respond to business opportunities on the reservation. The information presented here is based on personal interviews with tribal, BIA, and education officials in Crow Agency, Hardin, and Billings.

The section opens with a discussion of Crow Indian interest in new business opportunities and then portrays several constraints that must be overcome if Crow participation in the local commercial sector is to increase. The section closes with a brief overview of the effects that a rise in Crow income could have on expenditure patterns and discusses the consequences such changes would have on both Crow Indian and non-Indian businesses.

TABLE 3.2.2.2-2  
Employment by Type and Industrial Sector by Place of Work  
Decker Study Region  
1970, 1980

Industry	Employment 1970	Employment 1980	Percent of Total Employment 1970	Percent of Total Employment 1980	Percent Change 1970-1980	Average Annual Growth 1970-1980
Farm Proprietors	1,103	1,017	9.2	5.8	-7.8	-0.8
Nonfarm Proprietors	1,242	1,783	10.4	10.2	43.6	3.7
Total Wage and Salary Employment	9,617	14,696	80.4	84.0	52.8	4.3
Farm	820	861	6.9	4.9	5.0	0.5
Nonfarm	8,797	13,835	73.5	79.1	57.3	4.6
Private	6,026	10,375	50.4	59.3	72.2	5.6
Ag. Services, Forest, Fish	110	133	0.9	0.8	20.9	1.9
Mining	262	1,354	2.2	7.7	416.8	17.9
Construction	577	1,647	4.8	9.4	185.4	11.1
Manufacturing	696	527	5.8	3.0	-24.3	-2.7
TU <sup>a</sup>	458	554	3.8	3.2	21.0	1.9
Wholesale Trade	233	466	1.9	2.7	100.0	7.2
Retail Trade	1,675	2,402	14.0	13.7	43.4	3.7
FIRE <sup>a</sup>	251	492	2.1	2.8	96.0	7.0
Services	1,764	2,800	14.7	16.0	58.7	4.7
Government	2,771	3,460	23.2	19.8	24.9	2.2
TOTAL EMPLOYMENT	11,962	17,496	100.0	100.0	46.3	4.6

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, 1976-1980, Washington, D.C., April 1982. Includes full- and part-time employment.

<sup>a</sup>TU, PU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

TABLE 3.2.2.2-3

Basic and Nonbasic Employment by Industrial Sector  
Decker Study Region  
1980

Industrial Sector	Total Employment		Basic Employment		Nonbasic Employment	
	Number	Percent of Total	Number	Percent of Total of Sector	Number	Percent of Total of Sector
Agricultural Proprietors	1,017	5.8	1,017	100.0	0	0.0
Agricultural Labor	861	4.9	861	100.0	0	0.0
Agriculture, Forestry, Fisheries	179	1.0	0	0.0	179	100.0
Mining	1,390	8.0	1,390	100.0	0	0.0
Construction	1,837	10.5	708	8.9	1,129	11.9
Manufacturing	572	3.3	325	4.1	247	2.6
TCPU <sup>a</sup>	628	3.6	330	4.1	298	3.1
Trade	3,479	20.0	880	11.1	2,599	27.5
FIRE <sup>a</sup>	631	3.6	163	2.0	468	4.9
Services	3,363	19.3	1,369	17.2	1,994	21.1
Government	3,460	19.9	911	11.5	2,549	26.9
<b>TOTAL EMPLOYMENT</b>	<b>17,417</b>	<b>100.0</b>	<b>7,954</b>	<b>100.0</b>	<b>9,463</b>	<b>100.0</b>
				45.7		54.3

Source: Mountain West Research-North, Inc., 1982. Includes full- and part-time employment.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

TABLE 3.2.2.2-4  
Labor Force, Employment, and Unemployment  
Decker Study Region  
1970-1980

Year	Labor Force	Total Employment	Total Unemployment	Unemployment Rate
1970 <sup>a</sup>	11,264	10,816	448	4.0
1971 <sup>a</sup>	11,469	10,910	559	4.9
1972	10,973	10,426	547	5.0
1973	11,091	10,553	539	4.8
1974	11,772	11,142	630	5.3
1975	12,269	11,622	647	5.3
1976	13,110	12,495	615	4.7
1977	14,032	13,315	717	5.1
1978	15,702	14,982	720	4.6
1979	16,776	16,191	586	3.5
1980	16,917	16,057	860	5.1

Source: Montana Department of Labor and Industry, Montana Employment and Labor Force, February 1981; Wyoming Department of Employment Security, various years.

<sup>a</sup>1970 and 1971 data based on number of jobs at place of work. 1972 and subsequent data based on number of workers at place of residence.

TABLE 3.2.2.2-5

Commercial Establishments  
Sheridan and Big Horn Counties  
1982

Type of Commercial Establishment	Sheridan County	Big Horn County
<u>Retail</u>		
Gasoline Service Station	24	10
Eating and Drinking Place	43	14
Grocery and Other Food Store	16	9
Motor Vehicle Dealers and Auto Supply Store	17	6
Clothing and Shoe Store	16	4
Lumber, Hardware, and Mobile Home Dealer	11	4
Furniture and Household Appliance Store	11	3
Department Store	5	0
Drug, Variety, General Merchandise Store	14	7
Sporting Goods, Hobby, Flowers, Gift, Sewing Store	17	4
Liquor Store	9	1
Jewelry Store	3	1
Book Store and Newstand	4	0
<u>Service</u>		
Hotel, Motel, Commercial Campground	28	9
Beauty and Barber Shop	31	8
Auto Repair Shop	31	3
Legal, Accounting, Advertising, Data Processing	37	7
Engineering, Architecture, Surveying	20	0
Equipment and Auto Renting and Leasing	6	0
Laundry	6	2
Appliance, Furniture, and Shoe Repair	11	1
Movie Theatre and Bowling Alley	3	2
Janitorial Service	2	0
Photographic Studio	4	1
Car Washes	1	0
Funeral Service	2	1
<u>Finance and Real Estate</u>		
Real Estate Office	16	3
Insurance Agency	26	9
Personal Credit Institution	1	0
Commercial Bank	5	2
Savings and Loan Association	3	1
<b>TOTAL</b>	<b>423</b>	<b>112</b>

Source: Mountain West Research-North, Inc., 1983.

Level of commercial interest. The Crow Indian population in Big Horn County is a diverse group of people that have exhibited varying levels of interest in pursuing business opportunities. While much of the population has and probably will continue to refrain from the pursuit of commercial opportunities, many younger tribal members have expressed an interest in owning or managing commercial enterprises. This younger group consists of individuals trained in vocational skills like carpentry, plumbing, electrical work, welding, and auto repair and of individuals with business skills in retailing, accounting, and business information systems. Those with vocational skills have learned primarily from local schools and from on-the-job training with Indian contractors. Those with business skills have usually received some formal training from schools such as Little Big Horn Community College in Crow Agency, Eastern Montana College in Billings, or Montana State University in Bozeman.

Virtually all of the Crow Indians who have left the reservation to receive this training and education have returned to pursue jobs with local schools, tribal government, or Indian contractors. The high rate of return is attributed to several factors which include both nonlocal reluctance to hire Indians and simple desires by the young Crow Indians to return to their families and friends on the reservation (Windy Boy, personal communication, November 1982).

Many of the Crow Indians with appropriate skills are simply content to become employees of existing commercial establishments. However, many others have indicated a desire to use their skills in starting new businesses. The seriousness of these desires is evident in the number of loan applications that have been filed both with the BIA and with private lending institutions (Pickett, Rokita, personal communication, November 1982).

Commercial constraints. At least four types of constraints now restrict the Crow Indians' pursuit of commercial business opportunities. First, several cultural factors limit the number of Crow Indians that are interested in pursuing these types of activities. Second, in many cases, family constraints dampen the enthusiasm of individuals who are interested in becoming entrepreneurs. Third, the Crow Indian population is still restricted by educational constraints. And finally, virtually all Crow Indians who are interested in becoming entrepreneurs face severe financial and economic constraints. More details on each of these constraints are provided below.

- 1) Culture. Because Crow society can be characterized as "cooperative" rather than "competitive," many Crow Indians are not motivated by the notion of profit. In addition, cultural norms that have stressed generosity and friendliness rather than accountability to creditors do not facilitate success in businesses where time management and prompt payments from customers are important. Local contacts have indicated that many Crow Indians who otherwise were interested in starting small commercial establishments have refrained from doing so because they felt that success would depend on undesirable treatment of Indian customers. (Duffy, personal communication, November 1982.)
- 2) Family. Because generosity is an important guiding principle in Crow Indian lifestyles, many individuals distribute their incomes among extended families, friends, and other unrelated members of Crow society. These distributions frequently occur among Crow families and are often expected when profit or unusually large incomes are involved. Hence, even if an individual were attracted by the profits that accrue to the owners of successful commercial establishments, their desire to start such a business could be dampened by the knowledge that substantial portions of these profits would be distributed to other tribal members.
- 3) Education. While increasing numbers of Crow Indians are pursuing formal training and education in vocational and business skills that are useful on the reservation, these skills have proven more useful in gaining entry to existing organizations (schools, government offices, and so on) than they have in starting new businesses. As will be discussed below, new businesses require experience and capital that are rarely possessed by new recipients of high school diplomas and college degrees.

- 4) Finance. Even when Crow Indians are able to overcome all of the constraints discussed above, their ability to start new businesses is still severely limited by personal economic constraints and by the unavailability of financing. Most Crow Indians do not have adequate personal resources to establish their own businesses or enough collateral to obtain a loan directly from a private lending institution. Although several government programs are available to provide business loans, only one of them is currently making loans to Crow Indians.

The Small Business Administration's minority loan program has funds that are available for Crow Indian loans, but their lending criteria require collateral and some demonstrated experience in the business field under consideration. At present, only the owner of a movie theater in Lodge Grass and that of a camera shop in Hardin have been able to take advantage of this program.

Another potential source of loans for new businesses is the BIA's Tribal Relending Program. This program is administered by BIA officials in Crow Agency and currently has about 400 outstanding loans with about \$2 million in receivables. Of these 400 loans, only about 70 are currently making loan payments. Because new loans are limited to repayments on old loans, the BIA is only able to make about 10 new loans each year. Because of collateral requirements, new loans have been limited to agricultural operations in recent years. In addition, BIA officials believe that a loan to a commercial business that would depend on accounts receivable would be very risky. Although the program could obtain new government funding, local officials don't believe they could make successful loans at the 14 to 16 percent interest rates required by the federal government. (Peterson, personal communication, November 1982.)

Another BIA program is available to guarantee loans made by private lending institutions. However, this program is available only to Indian-controlled corporations, and BIA officials have indicated that banks in Hardin and Billings have been unwilling to participate in the program. (Pickett, personal communication, November 1982.)

Crow tribal policy. The Crow Tribe feels it would be desirable to have more Crow-controlled commercial establishments on the reservation but is currently focusing its efforts on programs that would provide large-scale employment opportunities and develop the reservation's natural resources. The tribe recently received a \$37,000 grant from the Economic Development Administration to employ one professional for a full year to develop businesses that would provide employment for many people. In addition, the tribe is considering transferring control of the reservation's natural resources to an organization that would be known as the Crow Development Corporation. This corporation would be charged with developing natural resources but would have no direct effect on the establishment of commercial business.

Crow Indian expenditure patterns. If the Crow Indians' income increased, either because of employment at new mines or as a result of increased dividends from the tribe, changes in their expenditure patterns could influence the mix and location of new commercial establishments. Local officials expressed two distinctly different viewpoints on this subject. Some felt that Crow Indians would spend additional income on basic necessities such as housing, clothing, food, health care, transportation, and religious activities. Others felt that additional income would be spent first on consumable goods such as guns, pickups, snowmobiles, boats, and travel and then be spent on basic necessities after the higher income levels had been sustained for several years. It seems likely that Crow Indians would respond in both ways, and that an increase in income would result in higher local demand for a wide range of both basic and consumable goods.

Crow Indians do their shopping primarily in Hardin and Billings and also in Sheridan. Because these trips often serve recreational purposes as well, the Crow Indians might continue to make these longer trips even if more local goods and services were available. This characteristic appears to be a factor which could limit the establishment of new commercial establishments on the reservation even if Crow incomes were to increase.

### Non-Crow response to increases in Crow demand

With an increase in demand, it is conceivable that non-Crow businesses might be attracted to the reservation. This section briefly discusses several factors that could influence non-Crow decisions to establish businesses on the reservation.

Although it is not known whether they would take effect, two policy issues could potentially discourage non-Crow business development on the reservation. First, the tribe claims rights of taxation on all nontribal businesses on the reservation. Uncertainty about whether this right would be enforced could discourage non-Crow entrepreneurs who would otherwise be interested in locating on the reservation. Second, the Tribal Employment Rights Office requires that any new construction on the reservation be done by Crow or other Indian contractors if their bids are within 10 percent of non-Indian contractors. Given the lack of available commercial space on the reservation, this requirement could also discourage non-Crow businessmen.

Another factor that could inhibit business development is the high rate of vandalism on the reservation. This problem is exacerbated by the fact that reservation law enforcement officials will only investigate crimes committed by Indians. Because it is usually impossible to determine in advance the race of those responsible, many acts of vandalism go uninvestigated.

A final factor that could discourage non-Crow entrepreneurs from opening businesses on the reservation is the uncertainty associated with doing business in an unfamiliar business environment. When combined with the other disincentives noted above, this uncertainty could serve to discourage entrepreneurs who otherwise might be attracted.

### 3.2.2.3 Income

As shown in Table 3.2.2.3-1, regional per capita income in constant 1972 dollars increased by 38 percent over the 1970-1980 decade; it rose to \$10,449 in 1980 from \$7,566 in 1970 growing at an average annual rate of 3.8 percent. Total personal income almost doubled over the same period, as did dividends, interest, and rent. The components of personal income maintained almost the same distribution over this period.

### 3.2.3 Social Life and Cultural Diversity

#### 3.2.3.1 Social History and Elements of Changes

The existing social environment of the Decker project study area is best understood as the outcome of an ongoing interaction between established local, social, economic, and political patterns and outside forces. Throughout its history, location, geography, and climate have directly influenced the region's social organization and activities. Terrain, climate, land ownership patterns, and transportation links have played a continuing role in land use and residential distribution. The Bighorn Mountains provided a backdrop of scenery and recreation, while the valleys and broken hills served as rangeland and a rich resource for coal. The eastern slopes of the Bighorn Mountains were prized hunting grounds for the Crow, Northern Cheyenne, and Sioux. White settlement came more slowly and later to this area than to some other areas in Wyoming and Montana as transportation routes -- and the railroad -- bypassed the region. Nevertheless, opportunities for cattle raising attracted stockmen -- and wealthy eastern and English investors -- to the area, despite its distance from a railroad.

The initial patterns and motivations for settlement and land acquisition in the area continue to influence the region's social and economic organization and the social and political relationships among



TABLE 3.2.2.3--1

Components of Personal Income  
Decker Study Region  
1970, 1980  
(thousands of 1972 dollars)

Category	Components of Personal Income 1970	1980	Percent of Total Personal Income 1970	1980	Average Annual Growth 1970-80
Labor and Proprietor's Income	\$77,599	\$138,819	70.0	69.7	6.0
Less: Personal Contributions for Social Insurance	3,420	7,581	-3.1	-3.8	8.3
Plus: Dividends, Interest, and Rent	22,835	45,369	20.6	22.8	7.1
Plus: Transfer Payments	13,332	24,091	12.0	12.1	6.1
Plus: Residency Adjustment	439	-1,565	0.4	-0.8	
Personal Income by Place of Residence	110,786	199,133	100.0	100.0	6.0
Per Capita Income	7,566	10,449			3.3

Source: Mountain West Research-North, Inc., 1982.

its residents. The struggle for resources, particularly land, that took place during the second half of the 1800s persisted into the 1900s, although overt hostilities among the area's three major groups -- Crow, Northern Cheyenne, and anglos -- had generally ceased by 1900.

Between 1900 and 1945, Big Horn County, Montana and Sheridan County, Wyoming experienced varied patterns of growth and change, despite their proximity to one another. The early 1900s brought substantial economic and population growth to Sheridan County. The construction of the Chicago, Burlington, and Quincy Railroad (CB&Q) reduced the isolation of the area and established Sheridan as a major railhead and regional trade center. Besides providing rail employment, the availability of rail transportation stimulated the production and marketing of cattle and grain crops. Sugar beet production gained added importance after the completion of Sheridan's sugar beet factory in 1915, and a flour mill and brewery contributed to local employment opportunities. The railroad also stimulated development of the area's coal and timber resources; coal mining provided an especially significant employment source that bolstered the area's economy for many years.

During the same period, Big Horn County experienced less dramatic economic and population growth. County government in its present form was not completed until 1913 when the state legislature fixed new county lines and designated Hardin as the county seat. The opening of the Crow Indian Reservation to settlement in 1906 attracted white settlers and investors (many with interests in the Sheridan area), but economic opportunities for both Indians and anglos remained limited to agriculture and stock raising.

Between 1930 and 1945, both Big Horn and Sheridan counties encountered a period of economic stagnation. Because Big Horn County had not experienced the rapid growth and diversification that had taken place in Sheridan County, the drought and depression of the 1930s caused less dramatic changes in Big Horn than in Sheridan County. Although population continued to grow in Big Horn County during this period, fewer farmers and ranchers were employed. As throughout the region, successful ranchers and farms absorbed the less successful: corporate farming/ranching operations such as the Campbell and Scott Ranches accounted for an increasing proportion of acreage and crop production.

During the 1930 to 1945 period, Sheridan County experienced serious economic decline. Coal operations dwindled after the 1920s -- the increase in agricultural acreage and production of this period reflects a shift to agriculture from the previously lucrative mining and manufacturing activities. Numerous coal miners who had been part-time farmers during the 1920s became full-time agriculturalists after mining operations closed. Eastern investors increased in importance as they purchased or organized dude ranches. Even the economic upswing during World War II did not overcome the dominant tendency of economic stagnation in the study region.

Throughout the 1950s and 1960s, and to a great extent through the 1970s, Big Horn County remained rural in character, with agriculture continuing to be the major economic sector. The national trends of mechanization and consolidation caused declining agricultural employment and population. Fewer farm hands were needed, and the area followed the national trends of out-migration by working-age persons and an aging of the population. The decline in employment was somewhat offset by the growth of service-related jobs, two major construction projects (Yellowtail Dam and Interstate 90), and, during the 1970s, the resurgence of coal mining in the Decker and Sarpy Creek areas.

During the 1950 to 1980 period, Big Horn County's economy continued to be oriented toward Billings, Montana for trade and toward Sheridan, Wyoming for access to agricultural markets (although residents of southern Big Horn County generally shopped in Sheridan).

As in previous periods, the presence of two Indian reservations in Big Horn County affected the political, economic, and social climate. Federal dollars flowed to area businesses through employment and transfer payments to tribal members. Area ranchers continued to support their ranching operations by

leasing grazing land on the Crow Reservation, and both Crow and anglos obtained employment in the new strip mines that opened during the 1970s.<sup>1</sup>

During the 1950s and 1960s, Sheridan County's economy, particularly the city of Sheridan's, continued its decline. The economy became increasingly less diversified and more dependent upon ranching and agriculture. By the end of the 1950s, the underground coal mines had lost their primary market -- the Burlington Northern Railroad -- and had closed as had the sugar refinery, the flour mill, and the brewery, all of which had been longtime mainstays of the local economy. By 1970, the Burlington Northern Railroad tie yard was also closed, marking the end of railroad construction and a period of serious decline in railroad operations.

As throughout the West, agriculture in Sheridan County underwent increasing mechanization and consolidation during this period, and agricultural employment declined. Unique in Sheridan's agriculture was the presence of Easterners who had purchased or formed area ranches for business and recreation purposes. The combination of Eastern money and the area's scenic landscape created a recreation industry that became an important sector of the county's economy. Also important during this period was the professional sector, which increased in size during the 1950s and 1960s. The Veterans Administration Hospital provided an important economic base for the area during these hard times.

As the economy declined, people of working age left the area. Those of retirement age, on the other hand, continued to come to the Sheridan area from the surrounding region. Attracted to Sheridan by the community's setting, amenities, and services, these farmers and ranchers perpetuated Sheridan's reputation as a retirement community and somewhat countered the population decline.

The downward trends in employment and population were not reversed until the 1970s with the expansion of strip mining of coal in the Decker area near Sheridan and the Sarpy Creek area near Hardin. The new employment opportunities and income brought in-migration, a redirecting of employment away from agriculture, an expansion of commercial activities, and a firming of county and state ties.

### 3.2.3.2 Social Organization

The existing social environment and organization in the Decker study area has been greatly influenced by the area's history of cultural and economic diversity and by the prolonged period of economic and population decline it experienced before the recent -- and brief -- economic revival due to expanding coal strip-mining activities. The growth period of the 1970s, though significant and rapid, was, nonetheless, smaller in magnitude and shorter in duration than generally anticipated. The downturn in mining employment after 1980 was largely unexpected. Despite the downturn, however, the social, economic, and political diversity of the area was greater in the early 1980s than at any time since the 1920s. The upsurge of nonagricultural employment reversed the long-term area trends of increasing dependence on agriculture and the federal government as an economic base and brought newcomers with diverse personal backgrounds into the area, especially the greater Sheridan area. More specific discussion of these changes in economic, political, and social diversity and complexity is provided in the social sections for the counties and communities of the study area.

Throughout the study area, however, the experience of dealing with energy-related growth of the 1970s has prepared area residents, businesses, and governmental organizations to deal more effectively and pragmatically with future growth. The communities -- particularly the county governments, the Crow Tribe, and the incorporated communities -- have established alliances and contacts with state and federal agencies as well as with other local governments that have been, and can continue to be, used to obtain information

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<sup>1</sup>The social history of the Crow Reservation and its residents is presented in an accompanying document (AITS 1963).

and resources. To this extent, the experience with energy development has reduced the isolation of the area and enmeshed it more firmly in regional, state, and national affairs. To some in the area, this has been viewed as advantageous; to others, it has seemed an intrusion of the outside world on local and personal relationships.

As the economy and demography of the area have changed, the opportunities for political, economic, and social power, influence, and status have been adjusted. As newcomers with professions and/or allegiance to outside organizations have become more numerous and important in area affairs, and as the proportion of the population in the prime working ages has increased, the relative dominance of ranching, of "pioneer" heritage, and of the elderly has been reduced through processes that are continuing.

One of the challenges that was placed on area communities by the energy-related growth of the 1970s was to organize and coordinate their efforts for response. Because the mining activities were located in Montana while the majority of the population growth accrued to the greater Sheridan area, the problems of coordination and cooperation were enhanced and were of greater importance than if revenues and population had occurred together. Local officials in Sheridan County were pressed into developing a strategy for controlling and responding to growth. In the process, they updated and/or reevaluated governmental procedures and policies, instituting more aggressive funding and taxing programs, planning, and lands use practices. Moreover, they initiated a more active dialogue between the communities and the county. Both the county and the communities in the Sheridan area were very successful in obtaining state and federal assistance during the rapid growth period.

### 3.2.3.3 Indicators of Well-being

Though data are frequently scarce, it is useful to present some of the quantitative indicators of well-being for the two counties in the study region.

The population of Big Horn and Sheridan counties, as well as the respective state populations, for 1970 through 1980 are given in Table 3.2.3.3-1. Big Horn County had the least increase in population (10 percent), remaining relatively stable through the decade. Montana's population increased by 13 percent during the same period. By contrast, Sheridan County and Wyoming both had large population increases, 40 percent and 42 percent, respectively. This increase shows the effect of energy development in Sheridan County and the state.

Data on divorce for the 1970 to 1980 period are shown in Table 3.2.3.3-2. Big Horn County is consistently lower in divorce rates than Montana, while Sheridan County has a more mixed record; it is lower than the state rate in some years and higher in others.

Suicide rates, shown in Table 3.2.3.3-3, are hard to meaningfully discuss since the frequency is so low that rates are unstable. What the data show mostly clearly is that suicide remains a rare event in all jurisdictions examined.

Crime is one of the most important indicators of the problems of growth. The data in Table 3.2.3.3-4 show an increase in crime since 1978 in both Sheridan and Big Horn counties. Despite the increase, however, crime rates in Sheridan County remained below state levels. Residents in both counties were concerned about increased vandalism and other property crimes. Neither residents nor law enforcement officials felt that violent crimes had substantially increased.

Per capita income (based on BEA data) has increased in both counties and in both states (see Table 3.2.3.3-5). In Big Horn County, per capita income rose 180 percent over the decade (the state increase was 107 percent). The Sheridan County increase was 158 percent, while Wyoming experienced a 195 percent increase in per capita income. In all the areas, much of the increase comes from the effects of infla-

TABLE 3.2.3.3-1  
Indicators of Community Well-being  
Population  
Sheridan and Big Horn Counties  
1970-1980

Year	Big Horn County	Sheridan County	Montana	Wyoming
1970	10,057	17,852	694,409	332,422
1971	10,100	18,700	710,000	348,050
1972	10,300	18,928	719,000	361,142
1973	10,300	18,990	721,000	372,482
1974	10,500	19,472	735,000	391,509
1975	10,900	20,008	748,000	406,683
1976	10,600	20,040	753,000	424,178
1977	10,700	22,005	761,000	440,801
1978	10,800	23,574	785,000	459,466
1979	11,100	24,435	786,000	473,465
1980	11,096	25,048	786,690	470,816

Sources: Montana State Department of Health and Environmental Sciences, Research and Statistics Division, 1981; Lucinda McCaffney, Wyoming State Department of Health and Social Services, personal communication, 1981.

Note: These figures do not reflect the undercount of Crow Indians in the 1980 U.S. Census, as summarized in Table 3.1-1.

TABLE 3.2.3.3-2  
Indicators of Community Well-being  
Divorce  
Sheridan and Big Horn Counties  
1970-1980

Year	Big Horn County No./per 1000	Sheridan County No./per 1000	Montana Per 1000	Wyoming Per 1000
1970	52/5.2	120/6.7	8.2	5.4
1971	48/4.7	131/7.0	9.2	5.7
1972	76/7.8	113/5.9	9.1	6.1
1973	62/5.6	154/8.1	9.1	6.1
1974	46/4.4	142/7.3	8.7	6.4
1975	63/5.8	120/6.0	9.2	7.0
1976	78/7.4	148/7.4	8.3	6.7
1977	60/5.6	155/7.0	9.1	7.0
1978	68/6.3	140/5.9	9.2	6.8
1979	61/5.5	202/8.3	10.5	7.4
1980	37/3.3	202/8.1	6.3	8.1

Sources: Montana State Department of Health and Environmental Sciences, Research and Statistics Division, 1981; Lucinda McCaffney, Wyoming State Department of Health and Social Services, personal communication, 1981.

TABLE 3.2.3.3-3

Indicators of Community Well-being  
Suicide  
Sheridan and Big Horn Counties  
1970-1980

Year	Big Horn County No./per 1000	Sheridan County No./per 1000	Montana No./per 1000	Wyoming No. per 1000
1970	NA	6/33.6	79/11.4	65/19.5
1971	NA	3/16.0	107/16.5	68/18.8
1972	2/20.4	4/21.1	87/12.1	69/18.7
1973	2/18.0	4/21.0	108/15.0	65/17.1
1974	3/28.6	3/15.4	122/16.6	67/16.5
1975	1/9.2	3/15.0	112/15.0	66/16.4
1976	0/0.0	6/29.9	129/17.1	69/16.3
1977	2/18.7	2/9.1	143/18.8	60/13.6
1978	0/0.0	3/12.7	122/15.5	78/17.0
1979	2/18.0	3/12.3	123/15.6	79/16.7
1980	2/18.0	2/7.9	116/14.7	74/15.8

Sources: Montana State Department of Health and Environmental Sciences, Research and Statistics Division, 1981; Lucinda McCaffney, Wyoming State Department of Health and Social Services, personal communication, 1981.

Note: NA = Not available.

TABLE 3.2.3.3-4

Indicators of Community Well-being  
Crime  
Sheridan and Big Horn Counties  
1970-1980

Year	Big Horn County No./per 1000	Sheridan County No./per 1000	Montana No./per 1000	Wyoming No./per 1000
1970	NA	NA	NA	NA
1971	NA	NA	NA	NA
1972	NA	NA	NA	NA
1973	93/9.5	NA	NA/34.2	NA
1974	85/7.5	NA	NA/40.0	NA
1975	148/13.8	NA	NA/44.5	NA
1976	132/12.4	NA	NA/42.9	NA
1977	159/14.9	NA	NA/42.1	NA
1978	155/14.2	696/29.5	NA/40.0	17,388/37.8
1979	223/20.6	839/34.3	NA/44.6	21,048/49.3
1980	250/22.5	838/33.4	NA	22,502/47.7

Sources: Larry Peterson, Montana Board of Crime Control, personal communication, June 1981; Dianne Stanley, Montana State Board of Crime Control, Statistics, January 1983; Office of Attorney General, Wyoming State Department of Justice, personal communication, 1981.

Note: NA = Not available.



TABLE 3.2.3.3-5  
Indicators of Community Well-being  
Per Capita Income  
Sheridan and Big Horn Counties  
1970-1980

Year	Big Horn County	Sheridan County	Montana	Wyoming
1970	\$2,891	\$4,108	\$4,255	\$3,686
1971	2,694	4,417	4,378	3,945
1972	3,281	4,739	4,645	4,395
1973	4,132	5,304	5,344	5,039
1974	4,370	5,748	6,536	5,678
1975	4,148	6,020	5,419	6,119
1976	4,195	6,667	5,763	6,791
1977	4,729	7,418	6,172	7,558
1978	6,427	8,696	7,138	8,572
1979	7,195	9,868	7,787	9,798
1980	8,082	10,610	8,652	10,875

Source: United States Department of Commerce, Bureau of Economic Analysis, April 1982.

tion. However, the large salaries from energy development are apparent, especially in Sheridan County and Wyoming. In 1982, the depressed economy and slowdown in mining reduced per capita incomes.

Some of the early effects of the downturn in mining, and the economy as a whole, are shown in the unemployment data in Table 3.2.3.3-6. Each area experienced an increase in unemployment from 1979 to 1980. Big Horn County shows a consistent pattern of much higher unemployment than the state, largely due to the high rate of unemployment among Indians. On the other hand, Sheridan County has, for the most part, an unemployment rate close to the state level. As a result of national and local conditions, especially the reduced mining employment, unemployment rates rose in 1982.

As shown in Table 3.2.3.3-7, Big Horn County experienced an 8 percent drop in retail business over the 1970-1980 period. For Montana as a whole, retail business increased by 12 percent. Growth in retail business between 1970 and 1980 was relatively strong in Sheridan (16 percent), though the county showed slower growth than the state (29 percent). Without doubt, much of this increase in business opportunities was tied to energy development. Big Horn County, because it lacked a major regional center, lost much of its energy-related income to Billings and Sheridan.

### 3.2.4 Housing

Although more than 80 percent of the study region's housing development during the 1970s took place in Sheridan County, both counties experienced rapid growth during the 1970 to 1980 period. Between 1970 and 1980, Big Horn County's housing stock grew from 2,900 units to 3,867 units, an increase of 967 units or 33 percent. Sheridan County's housing stock grew from 6,893 units to 10,928 units, an increase of 4,035 units or 58 percent. Local officials have indicated that most of this growth can be attributed to coal-related population in-migration in the early 1970s. Since 1979, however, high mortgage interest rates and construction costs have suppressed housing demand in both counties. In addition, the higher cost of housing has shifted local demand away from single-family detached houses toward multifamily units and mobile homes.

The governmental agencies responsible for directing residential growth in Big Horn County, Hardin, Sheridan County, and the city of Sheridan have been expecting more growth than has taken place and are consequently well prepared to accommodate new growth in the 1980s. Both counties have policies to direct residential growth into existing communities and to avoid rural sprawl. No communities in the study region appear to have any land constraints that would restrict residential growth. Hardin and the city of Sheridan have been annexing new residential land in recent years, providing it with city services and bringing it into the city tax base. Although the availability of construction and mortgage financing has not been a constraint to development in the last decade, this situation could change if housing demand in the study area and the nation were to increase simultaneously. Local builders have the capacity to build about 40 housing units per year in Big Horn County and about 500 units per year in Sheridan County. In addition, Indian contractors on the Crow Reservation in Big Horn County also have the capacity to build about 40 units per year.

On the Crow Reservation, most of the new housing in the 1970s was financed by the U.S. Department of Housing and Urban Development (HUD). Although a moratorium on new HUD housing was imposed in the late 1970s and early 1980s because of a "poor payment record," the moratorium has recently been lifted and 115 new units are now scheduled for construction on the Crow Reservation. However, despite this new construction, the current overcrowded conditions that characterize most areas of the reservation are likely to continue.

As a final note on housing on the Crow Reservation, the 1982 BIA housing survey revealed that of 1,223 Indian houses on the reservation, 898 units or 73 percent were in standard condition. Of the 325 sub-

TABLE 3.2.3.3-6  
Indicators of Community Well-being  
Unemployment  
Sheridan and Big Horn Counties  
1970-1980  
(Per 1000 population)

Year	Big Horn County	Sheridan County	Montana	Wyoming
1970	4.6	3.7	4.1	4.4
1971	6.1	4.2	4.2	4.4
1972	6.0	4.5	3.6	3.8
1973	6.6	3.9	3.0	3.3
1974	7.7	4.1	3.1	3.4
1975	7.1	4.3	3.6	4.2
1976	5.9	4.1	3.0	4.1
1977	8.0	3.7	2.6	3.6
1978	6.4	3.6	2.4	3.3
1979	5.0	2.7	2.2	2.7
1980	6.2	4.5	3.1	3.9

Sources: Montana State Department of Labor and Industry, Employment Security Division, Research and Analysis Section, February 1981; Wyoming State Department of Employment Security, personal communication, December 1982.

TABLE 3.2.3.3-7

Indicators of Community Well-being  
 Number of Retail Businesses  
 Sheridan and Big Horn County  
 1970-1980

Year	Big Horn County	Sheridan County	Montana	Wyoming
1970	79	160	5,080	2,517
1971	81	159	5,054	2,558
1972	75	158	5,074	2,526
1973	73	164	5,215	2,873
1974	69	166	5,506	2,847
1975	76	167	5,467	2,890
1976	78	174	5,693	3,044
1977	78	181	5,994	3,249
1978	73	191	5,953	3,251
1979	72	174	5,847	3,257
1980	73	185	5,702	3,247

Source: United States Department of Commerce, Bureau of Census,  
 County Business Patterns, Montana Yearly Publication, Montana 1970-1980,  
 Wyoming 1970-1980.

standard units, 135 units needed renovation and 190 units needed replacement. These figures indicate a serious problem in terms of housing quality and overcrowding.

### 3.2.5 Facilities/Services

A recurring issue throughout this report is the jurisdictional mismatch that is created by the location of the mines. Most tax revenues from the proposed mining projects will be contributed to the State of Montana and Big Horn County as a result of the geographic locations of the proposed developments while the majority of the population associated with the mining development will reside in Sheridan County, Wyoming. Residents and governmental officials in the Sheridan area have experienced the consequences of this jurisdictional mismatch with the mining development of the 1970s, and are acutely aware of its recurrence with the proposed mines. To most of these residents and decision-makers, it constitutes a highly inequitable situation.

### 3.2.6 Fiscal

The description of the existing fiscal condition of the Crow Tribe and the counties and communities in the study area illustrates the great differences among them. As is evident in these discussions, the taxing mechanisms, revenue sources, and fiscal soundness of the jurisdictions vary greatly. Major issues in the study area include the jurisdictional mismatch involving Wyoming residents and the state of Montana, and the continuing jurisdictional disputes between the Crow Tribe and the state of Montana. These issues are discussed in more detail in the discussions of specific jurisdictions that follow.

### 3.2.7 Transportation

#### 3.2.7.1 Road Network

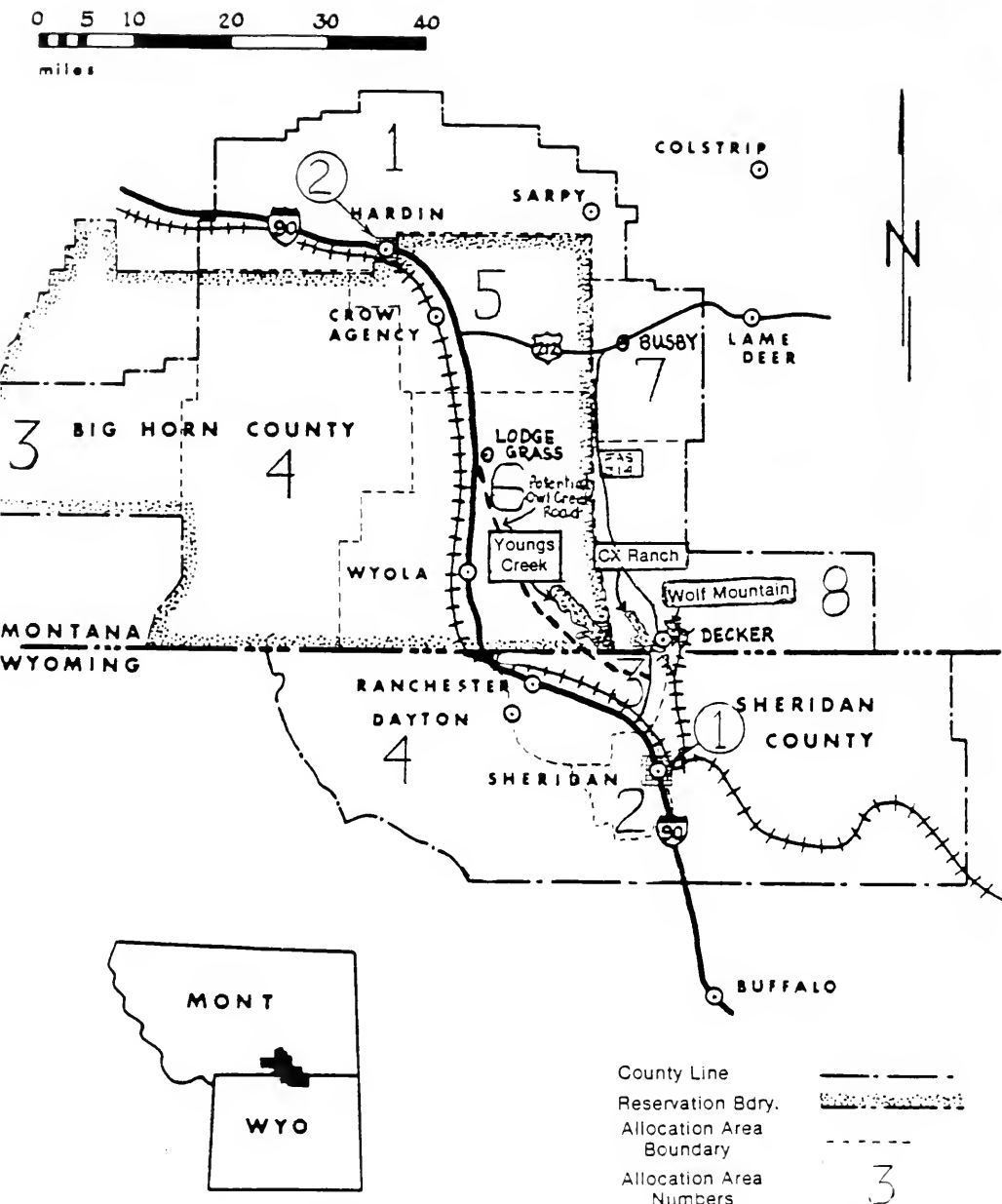
The road network in the study area includes 600 miles of federal and state highways and 1,320 miles of county roads (see Figure 3.2.7.1-1). Big Horn County has 81 miles of interstate highway (I-90), 79 miles of primary, 160 miles of secondary, 900 miles of county, and 375 miles of Indian and national roads. Sheridan County has 46 miles of interstate (I-90), 62 miles of primary, 133 miles of secondary, 420 miles of county, and 403 total miles of local or national roads. Table 3.2.7.1-1 summarizes the road network in both Big Horn and Sheridan counties.

I-90 is a four-lane, limited access highway serving both Big Horn and Sheridan counties. Sections of this highway are not yet complete. Other primary roads in Big Horn County are Federal Aid Primary 47 North and U.S. Highway 212, the major route east of Hardin. FAS 314 is another important, although mostly unpaved road that runs in a north-south direction between Busby on the Northern Cheyenne Reservation to Decker. If any of the proposed mines were built, this road would be used by residents of the Northern Cheyenne Reservation to commute to the mine sites. In addition, the Northern Cheyenne Tribe has expressed concern about potential contractor/commercial traffic between Colstrip and a new Decker area mine. The Northern Cheyenne tribe's concerns stem from their responsibility for maintenance and surveillance on a portion of this narrow road.<sup>1</sup> However, it is impossible to determine whether this traffic would materialize. U.S. Highway 14 is the principal east-west axis in Sheridan County. U.S. 87 is an important north-south route.

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<sup>1</sup>In 1983, the Montana Coal Board committed \$500,000, and the BIA committed \$200,000 to upgrade this road.

FIGURE 3.2.7.1-1  
Transportation Network



Source: Montana Department of State Lands,  
Radio-Economic Study of the Proposed Shell Oil  
Company Pearl Mine, Helena, Montana, 1978.

TABLE 3.2.7.1-1

Sheridan and Big Horn County Roads  
Type/Mileage

Type	Miles
<u>Big Horn County</u>	
Interstate (I-90)	80.79
Primary	79.17
Secondary	159.88
Other	
Hard surfaced	142.32
Gravel	587.87
Improved	27.32
Unimproved	328.29
Primitive	190.08
Total	1,595.72
<u>Sheridan County</u>	
Interstate (I-90)	46.53
Primary	62.38
Secondary	133.05
Urban	27.87
State Highways	5.14
Other	
Hard surfaced	45.45
Gravel	580.50
Graded/Drained	118.52
Bladed	79.19
Total	1,098.63

Sources: Montana Department of Highways,  
1982; Wyoming State Highway Department, 1982.

In 1981, I-90 carried an average daily traffic (ADT) of more than 2,000 vehicles at the Montana-Wyoming line. North of the state line, the ADT was over 4,300 near the Custer Battlefield and approximately 4,000 near Hardin. South of the state line, the ADT reached 4,500 at Sheridan. In Big Horn County, Federal Aid Secondary (FAS) 314 had an ADT of 553 near Decker. Wyoming Route 338 had an ADT of 1,200 south of the Montana line.

The traffic flows in southern Big Horn County and northern Sheridan County have increased greatly between 1973 and 1981. The traffic volumes on I-90 have nearly doubled since 1973, while that on FAS 314 in Big Horn County has increased 70 percent over the same period. Traffic on Wyoming 338 has also doubled. Coal development in both counties has been responsible for an important share of the increase. For example, commuting by Wyoming residents to their jobs at Montana mines accounts for much of the traffic between Sheridan and the Decker area.

Elsewhere in Big Horn County, traffic volumes have also shown increases since 1973, although not on the same scale. For example, U.S. 212 experienced an increase in ADT from less than 900 in 1973 to 1,500 in 1981. However, Highway 313 between Hardin and the Bighorn Canyon National Recreation Area has decreased since 1973. In Sheridan County, traffic volumes on U.S. 87 and U.S. 14 have increased moderately.

In Big Horn County, several significant road problems exist. First, coal development in southern Big Horn County has resulted in increased heavy vehicle traffic, creating greater maintenance costs and needs to upgrade principal routes.

Second, the road network in Big Horn County does not provide direct routes between many of the communities. Travelers between Lodge Grass and Decker or Lodge Grass and Busby must follow circuitous routes. These road patterns not only discourage integration of the Decker area with the rest of the county, they also make it more difficult for Big Horn County residents to commute to jobs in the Decker area.

In the Youngs Creek area a very low standard road exists to serve the Shell Mine area. One major road improvement currently planned in Big Horn County is the completion of I-90 north of the Wyoming line. This project has been approved by the Montana Highway Department.

Sheridan County officials have identified the lack of direct access from residential development south and west of Sheridan to U.S. Highway 87. As a result, some traffic congestion occurs in downtown Sheridan during peak traffic periods. A by-pass is needed to allow coal mine employees to reach U.S. 87 enroute to Montana coal mines without driving through downtown Sheridan. Other identified problems include lack of maintenance and the resulting deterioration of roads in the energy development area of Sheridan County and the need for paving of Big Goose Road south of Beckton and Beaver Creek Road. In Sheridan County, the proposed West Beltway Highway is the highest priority improvement presently proposed.

### 3.2.7.2 Rail Network

A Burlington Northern main line runs south through Big Horn County to Sheridan, Wyoming. The line originates at Huntley, Montana and connects Hardin, Lodge Grass, and Sheridan. Twelve to fourteen trains travel the line per day each way, of which two are unit coal trains.

From Sheridan, the BN mainline runs eastward through Clearmont to the Campbell County line. Rail traffic east from Sheridan includes eight (four each way) merchandise freight trains.

A spur line, approximately nineteen miles long, connects the West Decker Mine with the BN main line at Dutch Junction, about five miles east of Sheridan. The spur extends northwest from the Decker Mine to the Spring Creek Mine.



Approximately 4.4 million tons of coal per year are shipped south to Texas from the Decker/Spring Creek mines. That results in 440 unit-coal trains per year (approximately nine per week) passing from the Decker area to the east of Sheridan.

### 3.2.7.3 Air Transportation

The major commercial airport serving the coal area is the Sheridan County Airport. Commuter airlines serve the airport: Air U.S., Pioneer Airways, and Big Sky Airlines. The main runway is 6,648 feet long. A new runway was scheduled for completion in 1979, but federal funding from FAA was withdrawn, and the project has not been finished. Western Airlines discontinued service in 1980, and Sheridan currently is without a major air carrier.

In Hardin, the air facility is the Big Horn County Airport. The main runway is paved, 3,500 long. To date, population levels and mining activities have not been sufficient to warrant commercial service. Such a market is not expected in the foreseeable future.

## 3.2.8 Outdoor Recreation

Outdoor recreation is described on both a regional and county level in this section. The regional discussion is important because of the proximity of diverse and unique public lands that support most of the recreation activities in the project area. These public lands offer mountainous forestland and water-based activities that are severely limited elsewhere in the semiarid and predominantly privately owned plains of eastern Montana and northeastern Wyoming (see Figure 3.2.8-1). Other parts of this section emphasize significant recreation opportunities and data for Big Horn County, Montana and Sheridan County, Wyoming.

Table 3.2.8-1 lists the important regional and county public outdoor recreation areas. Some better-known historic areas have been included because of the recreational value in visiting cultural and historic interpretive sites, a few of which have picnicking and/or rest facilities.

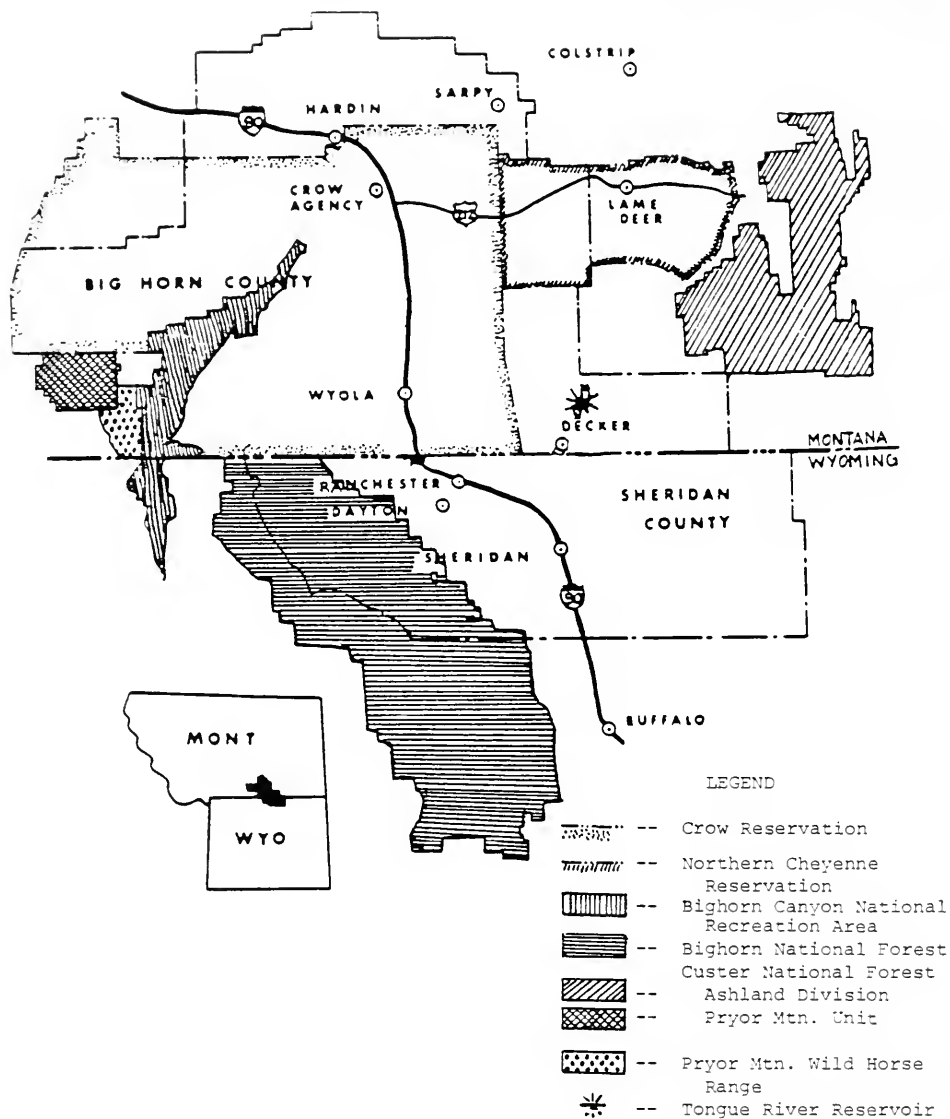
### 3.2.8.1 Description of the Region

While the plains and rolling hills of eastern Big Horn County, Montana and Sheridan County, Wyoming offer substantial dispersed recreation opportunities, the spectrum of opportunities in the project area is broadened and enhanced by the mountainous and forested public lands of the Big Horn National Forest and Bighorn Canyon National Recreation Area. These lie across county boundaries and serve as regional recreation sites.

#### Regional trends

Regional trends and participation rates in various outdoor activities in Montana have been documented in a recent survey (Wallwork 1980). The results, shown in Table 3.2.8.1-1, along with statewide participation rates for Wyoming, give an overview of the recreational characteristics of the project area. The findings of the Montana study reveal that residents in less populated counties like those in eastern Montana participate in four-wheeling, motorbike riding, picnicking, and snowshoeing and sledding at rates similar to other Montanans. However, they show slightly higher rates of participation in hunting, horseback riding, snowmobiling, and rock hounding, and slightly lower rates in boating, camping, cross country skiing, pleasure driving, pleasure walking, fishing, hiking, outdoor swimming, outdoor games, river float-

FIGURE 3.2.8-1  
Regional Outdoor Recreation Areas



Source: Mountain West Research-North, Inc., 1983.

TABLE 3.2.8-1

## Public Outdoor Recreation Areas of Regional and County Importance

Area	Ownership	Acres	Comments
REGION			
Bighorn National Forest	USFS	1,115,125	Segment in Sheridan County; 0.7 percent in other ownership
Bighorn Canyon National Recreation Area	NPS	120,284	Segment in Big Horn County; 43.3 percent in other ownership
Ashland Division of Custer National Forest	USFS	502,152	Borders Big Horn County; 13 percent in other ownership
Pryor Mtn. Unit of Custer National Forest	USFS	76,800	Multiple use management; rich cultural resources
Pryor Mtn. Wild Horse Range	(administered by BLM)	36,600+	Managed to preserve wild horses and habitat; recreation not encouraged
BIG HORN COUNTY, MONTANA			
Lind Fishing Access Area	NPS	360	Deeded land along the Bighorn River within the boundaries of the Crow Reservation
Arapowish Fishing Access Site	MOFNP		Deeded land along the Bighorn River within the boundaries of the Crow Reservation
Bighorn Fishing Access Site	MOFNP		Deeded land along the Bighorn River within the boundaries of the Crow Reservation
Two Leguins Fishing Access Site	MOFNP		Deeded land along the Bighorn River within the boundaries of the Crow Reservation
Grant Marsh Fishing Access Site	MOFNP	140	Access to Bighorn River 8 miles west of Hardin
Tongue River Reservoir	DNR		Tongue River
Roseland Battleground	MOFNP	5,000	Historic Site with hunting in season
Custer Battleground National Monument	NPS	755	Historic Site on Crow Reservation
Chief Plenty Coups State Monument	MOFNP	195	Historic Site on Crow Reservation
Scattered Parcels of Public Land	BLM	27,686	Generally Inaccessible

TABLE 3.2.8-1 (cont.)

## Public Outdoor Recreation Areas of Regional and County Importance

Area	Ownership	Acres	Comments
SHERIDAN COUNTY, WYOMING			
Kerns Wildlife Unit	WGF	9147+	Managed for wildlife and big game hunting
Amsden Wildlife Unit	WGF		
State Bird Farm	WGF	30	Managed for wildlife
State Fish Hatchery	WGF	5	Wildlife Management
Tongue River Canyon Camping Area	WGF		
Connor Battlefield	State of Wyoming		Historic site with interpretive facilities
Fetteman Fight Site	State of Wyoming		Historic site with interpretive facilities
Fort Phil Kearney	State of Wyoming		Historic site with interpretive facilities
Wagon Box Fight Site	State of Wyoming		Historic site with interpretive facilities
Scattered Parcels of Public Land	BLM	51,540	Generally inaccessible

Sources: Montana Department of Fish and Game, Montana Statewide Comprehensive Outdoor Recreation Plan (SCORP), Vol. 2, March 1978; Bureau of Land Management, Public Information Office, 1982; Clifford A. Kanz, Sheridan County Comprehensive Recreation Plan - A Preliminary Draft, Boulder: Western Interstate Commission for Higher Education, 1976; Jerry Jack and Gary Leppert, BLM Billings Area Office, personal communication, April 1983.

TABLE 3.2.8.1-1

Participation Rates for Selected Outdoor Recreation Activities  
In Montana and Wyoming  
(As percentage of total respondents that participated in the activity  
at least one time in the given year)  
1977, 1979

Activity	Montana 1979			Wyoming 1977 <sup>a</sup>	
	Respondents in Seven Largest Counties	All Other Counties	Statewide -- All Respondents n = 1,237	All Respondents n = 12,000	Statewide -- All Respondents n = 12,000
Backcountry touring	24.4	23.1	23.8		
Bicycling	35.7	28.8	32.8		36.6
Birdwatching	28.2	31.2	29.4		
Boating (motorized)	35.4	28.5	32.5		
Water skiing only					18.9
Camping	62.1	51.3	57.6		10.1
Cross-country skiing	18.5	9.0	14.6		55.3
Driving for pleasure	72.7	69.6	71.4		6.8
Fishing	61.8	54.8	58.8		
Ice fishing					50.2
Hiking	43.7	31.2	38.4		8.4
Horseback riding	16.7	21.7	18.8		29.6
Hunting	32.5	39.0	35.2		11.7
Upland					
Big game					12.9
Small game					27.4
Shooting					13.9
Motorbike riding	18.8	18.8	18.8		15.2
Outdoor swimming	68.2	61.3	65.3		10.9
Picnicking	77.5	77.5	77.5		30.3
					74.5

TABLE 3.2.8.1-1 (cont.)

Participation Rates for Selected Outdoor Recreation Activities  
In Montana and Wyoming  
(As percentage of total respondents that participated in the activity  
at least one time in the given year)  
1977, 1979

Activity	Montana 1979		Wyoming 1977 <sup>a</sup>	
	Respondents in Seven Largest Counties	All Other Counties	Statewide -- All Respondents n = 1,237	Statewide -- All Respondents n = 12,000
Playing outdoor games	63.6	51.5	58.5	
Golf				12.2
Tennis				15.3
Baseball				15.3
Archery				3.8
Riverfloating/canoeing	29.4	18.8	25.0	6.8 <sup>b</sup>
Snowmobiling	12.0	18.7	14.8	10.2
Walking for pleasure	73.6	69.4	71.9	
Downhill skiing	7.1	3.7	5.7	
Other winter sports	1.1	1.3	1.2	11.3
Sledding				19.6
Skating				13.2
Rock hounding	1.0	2.1	1.5	48.9
Visiting historic sites				

Sources: Susan S. Wallwork, Mary L. Lenihan and Paul E. Polzin, Attitudes: Outdoor Recreation in Montana (Missoula: University of Montana School of Business, 1980); Lynn Phillips and John Carlson, Projections of Outdoor Recreation Participation for Wyoming: 1995, (Laramie: Water Resources Research Institute, 1980).

<sup>a</sup>Data gathered for period April 1 - Sept. 30, 1977.

<sup>b</sup>Canoeing or sailing.

ing or canoeing, and downhill skiing. Lack of opportunity is a major factor limiting residents' participation in many of these activities.

### Bighorn National Forest

The Bighorn National Forest is located in the Bighorn Mountains in north-central Wyoming approximately 25 miles west of Sheridan. The summit of Cloud Peak is 13,165 feet above sea level, the highest point in the forest; the majority of the forest lies at an altitude of between 7,000 and 9,000 feet in open, park-like plateaus. This unique environment of 1,115,125 acres (with less than 1 percent private and state inholdings) is managed for a wide range of dispersed, developed, and wilderness-type recreation opportunities.

Only two paved roads lead into the eastern side of the forest: U.S. 14 through Sheridan and Ranchester and U.S. 16 from Buffalo. Numerous dirt roads plus 609 miles of trails supplement these primary access points, thereby providing vehicular, horse, and foot access to remote areas of the forest. As the population of Sheridan County increases, problems are expected to arise from a concentration of use proximate to these few primary access roads (U.S.F.S. 1981). Such concentration might degrade the environment and reduce visitor satisfaction with the quality of the recreation experience.

Table 3.2.8.1-2 shows estimated visitation rates by activity site for the Bighorn National Forest from 1970 to 1981. From a low of 985,800 in 1974, total use increased steadily to peak at over 1,300,000 recreation visitor days (RVDs)<sup>1</sup> in 1978. A slump occurred in 1979, with a partial recovery in 1980 bringing the total RVDs back to 1,275,600. In 1981, visitation continued to climb, with a substantial increase to 1,556,900 RVDs. Thirty-eight percent of the total forest use in 1980 was in the Tongue District -- that portion of the forest in Sheridan County. (U.S.F.S. 1981.)

There are 69 public and 103 private developed sites within the forest boundary. Two of the private sites are downhill ski areas that suffered a decline (bringing them well under capacity) from approximately 16 MVDs<sup>2</sup> in 1970 to 10 MVDs in 1980. At the same time, many of the 69 public sites (in particular, camping and picnic areas) were functioning at capacity, particularly on weekends. Overall, dispersed recreation gained popularity at a greater rate than developed recreation (see Table 3.2.8.1-2). (U.S.F.S. 1981.)

### Cloud Peak Primitive Area

The increased preference for dispersed recreation has implications for the 150,490-acre Cloud Peak Primitive Area and adjoining 5,230-acre Seven Brothers Area. Both have been proposed for inclusion in the National Wilderness Preservation System. Hiking is growing at a faster rate than overall visitation to this area. Consequently, the trails are used heavily and require substantial maintenance. Problems such as these are often reduced by management directives and policy changes such as restricting horse travel, redistributing recreationists to other areas and/or to weekdays rather than weekends or directing recreationists to nonwilderness Forest Service areas. (At present, there are four non-wilderness Forest Service areas, totalling 263,920 acres, and another 11,170 acres of BLM land undergoing wilderness study that are all managed for their wilderness qualities.) At lower elevations, these areas have timber stands which provide better screening effects and less fragile environments than the Cloud Peak and Seven Brothers areas. (Vachowski, personal communication, October 1982.)

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<sup>1</sup>One or more people using an area either continuously or on separate visits for a total of twelve person-hours.

<sup>2</sup>Thousands of visitor days.

TABLE 3.2.8.1-2

Bighorn National Forest  
Estimated Visitor Use  
(Thousands of Recreation Visitor-days)  
1970 - 1981

Year	Campgrounds and Picnic Areas	Visitor Information Services	Developed Recreation			Dispersed Recreation				
			Use Sites (Boating/Swimming)	Developed Sites under Permit	Winter Sports	Total Developed Recreation	Dispersed	Wilderness	Dispersed Recreation	Grand Total
1970	170.8	17.5	2.3	219.4	16.6	426.6	565.9	35.3	601.2	1027.8
1971					13.9	13.9		46.6	46.6	1,118.7
1972	208.4	13.6	3.7	235.1	11.8	472.6	605.8	57.4	663.2	1,135.8
1973	185.7	12.8	3.1	242.4	5.3	449.3	563.8	47.6	611.4	1,060.7
1974	168.0	9.7	3.1	219.0	8.1	407.9	539.9	38.0	577.9	985.8
1975	201.7	14.8	3.2	227.3	9.3	456.3	615.2	45.9	661.1	1,117.4
1976	205.9	18.4	4.9	226.5	9.8	465.5	732.1	46.7	779.0	1,244.5
1977	210.6	11.7	5.3	238.1	8.6	474.3	770.3	56.7	827.0	1,301.3
1978	215.8	15.5	5.7	233.6	11.1	481.7	753.0	72.8	825.8	1,307.5
1979	211.5	19.5	10.4	239.0	11.6	492.0	624.8	73.6	698.4	1,190.4
1980	250.7	15.9	6.7	237.5	11.3	522.1	669.3	84.2	753.5	1,275.6
1981	327.4	18.2	18.4	239.4	9.7	613.1	861.6	82.2	943.8	1,556.9

Source: Brian Vachowski, U.S. Forest Service, Bighorn National Forest, personal communication, November 1982.

Note: A recreation day is one or more people participating in a particular activity for a combined total of twelve hours.



### Bighorn Canyon National Recreation Area

The Bighorn Canyon National Recreation Area is a combination desert-like and forested canyon area of 120,284 acres (including 12,700 acres of Bighorn Lake) directly northwest of the Bighorn National Forest (see Figure 3.2.8-1). In and around the recreation area's boundaries, there is a mixture of land ownership and/or management jurisdiction shared by the National Park Service, the Crow Tribe, private landowners, BLM, U.S. Forest Service, Montana Department of Fish, Wildlife, and Parks (MDFWP), and the Wyoming Game and Fish Department (WGF). In the Dry Head area managed by the Park Service, there are 8,100 acres that have been proposed for wilderness designation.

Presently, management emphasis for the recreation area is on water-based recreation (boating, swimming, water skiing, and fishing), although the 1981 development plan calls for diversification with a priority on interpretation of the canyon's natural and cultural heritage. Existing facilities, adequate for at least five years, include shoreline campgrounds at Afterbay, Horseshoe Bend, the North Fork of Trail Creek, and one boating site at Black Canyon. In addition, there are a visitors' center at Yellowtail Dam and boat launching/fish cleaning facilities at Horseshoe Bend, Barry's Landing, and Ok-a-Ben. Extensive plans have been outlined in the 1981 development plan for phased construction of two additional campgrounds, a marina, more interpretive sites, and parking as use in the area increases. (U.S. Park Service 1981.) The only restriction on facility expansion is future funding, except in areas of overlapping management responsibility. In these areas, time-consuming, cooperative planning may cause further delays.

Only an estimated 12 to 15 percent of the visitors to the Bighorn Canyon National Recreation Area stay overnight. Overall visitation figures, presented in Table 3.2.8.1-3, show a peak in 1977 with 380,724 visits, a dramatic decline in 1978 to 309,096 and a steady recovery to 371,982 visits in 1981. In all, the number of visitors increased 46.8 percent from 1973 to 1981. (Binnewies, personal communication, November 1982.)

A noticeable change in the use of this national recreation area occurred as a result of the opening of the Bighorn River in 1981. There was a definite increase in the number of users camping and fishing the river from two public launch sites within the recreation area boundaries. The opening of the river also caused a noticeable increase in the number of visitors to the Yellowtail Dam. One other interesting observation by park rangers is an increased number of campers from Colstrip, Montana. (Binnewies, personal communication, November 1982.)

### Ashland Division of the Custer National Forest

To the northeast of Decker, Montana, the Ashland Division of the Custer National Forest provides another 438,075 acres of rugged, topographically diverse public land for dispersed outdoor recreation. Historically, the primary recreation uses have been deer and grouse hunting, picnicking, and berry picking by area residents. However, the division also provides excellent opportunities for hiking, horseback riding, and snowmobiling.

Present use is considered to be low, presenting no conflicts to management efforts. The major reasons for limited use are --

- 1) Distance from population centers, and
- 2) The unavailability of more desirable water based recreation opportunities.

At the same time, this relatively large area affords opportunities for isolation, a quality which is diminishing in other more popular areas. (USFS 1981.) Existing facilities include two campgrounds, two picnic sites, and five fishing ponds (Gibson 1982). Recreation visitor-day data show 40,000 RVDs in 1965, a

TABLE 3.2.8.1-3  
 Bighorn Canyon National  
 Recreation Area  
 Visitor Use  
 1973-1981

Year	Visitors
1973	253,316
1974	245,214
1975	285,285
1976	318,438
1977	380,724
1978	309,096
1979	327,977
1980	353,553
1981	371,982

Source: Bill Binnewies, Superintendent, Bighorn Canyon National Recreation Area, personal communication, November 1982.

low of 14,600 in 1971, 38,000 by 1975, and a continued increase to 43,700 by 1980 (USFS 1981). Potential conflicts with recreation interests could arise from the judicial determination of private subsurface mining claims on 16,135 acres of Forest Service surface land. (Gibson, personal communication, November 1982.)

#### Pryor Unit of the Custer National Forest

West of the Bighorn Canyon National Recreation Area and about fifty miles directly south of Billings is the Pryor Unit of the Custer National Forest (see Figure 3.2.8-1). This 76,800 acre tract is divided by the Pryor Mountains and a single developed road running north-south.

Rich cultural resources and natural beauty are the major attractions to this forest region drawing visitors primarily from the Billings area. In addition, a proposed wilderness area -- Lost Water Canyon -- offers backcountry isolation while grazing and timber production are conducted in more accessible areas. (Gibson, personal communication, April 1983.)

Visitation does not appear to be a management problem although there is only one developed campground. However, management difficulties arise when horses from the adjacent Pryor Mountain Wild Horse Range roam too far into the forest region. (Gibson, personal communication, April 1983.)

#### 3.2.8.2 Big Horn County

Approximately 43 percent of Big Horn County falls within the boundaries of the Crow Indian Reservation, where land is owned by the Crow Tribe, individual Indians, non-Indians, and federal and state government. The majority of the land outside the reservation is privately owned, presenting problems of access to public lands.

The Arapooish, Bighorn, Lind, and Two Leggings fishing accesses to the Bighorn River are sites owned by the state within the Crow Reservation. Although these are deeded lands accessible by state highway, they were closed from 1974 to 1981 due to the controversy over the ownership of the river's waters and fish. In 1974, the Crow Tribe claimed ownership of the surface water, as well as the shoreline and riverbed, of this popular blue-ribbon trout fishery, thus closing the river to non-Indians. In 1981, the U.S. Supreme Court settled this sensitive dispute by declaring that the waters and fish of the Bighorn River belonged to the state of Montana and therefore were open to public use within the constraints of legal access. Tensions between the Crow and non-Indians have restricted present use of the river. If tensions diminish, use is expected to rise sharply (Berntsen, personal communication, November 1982).

The Tongue River Reservoir, located northeast of Decker, is a large water impoundment in the project area. The reservoir is largely undeveloped, with natural boat launching sites, three primitive campgrounds with latrines, and one fishing access below the dam (Conklin, personal communication, November 1982). The reservoir fishery is basically for warm-water species such as walleye pike, northern pike, black and white crappies, sauger, and smallmouth bass (Mountain West Research, Inc. 1981).

Below the dam, the Tongue River offers good recreation opportunities for floating (boating), fishing, and observation of wildlife. Access is limited, however, by the Northern Cheyenne Reservation to the west and by private landowners to the east. The Tongue River is unique in that it contains the state's only viable smallmouth bass fishery in the thirty-mile river stretch from Birney to Ashland. (Mountain West Research, Inc. 1981.)

In addition, the Tongue River Reservoir area provides generally good hunting for big game and upland game birds characteristic of eastern Montana. Big game animals include mule and white-tailed deer, as

well as pronghorn antelope. Game birds include pheasant, gray partridge, wild turkey, and sharp-tailed grouse (Mountain West Research, Inc. 1981). The most important limitation on hunting and fishing is legal access to scattered government lands and the Tongue River. This problem is compounded by the posting of private land as a local reaction to the increased number of sportsmen and their apparent disregard for private property. Consequently, sportsmen must rely increasingly on public outdoor recreation sites.

The reservoir site is owned and minimally maintained by the Montana Department of Natural Resources and Conservation (DNRC). However, the MDFWP is negotiating a lease on the west side of the reservoir in order to provide better facilities to accommodate increasing use. Funding for this project is to come from the Decker Coal Company, which several years ago earmarked \$100,000 for road reconstruction and facilities development and another \$100,000 for maintenance over twenty years. Continued delays are attributed to the following:

- 1) Uncertainties about the future water level of the reservoir, depending on DNRC's approach to necessary dam repairs
- 2) Difficulties in reaching a lease agreement
- 3) Past attempts by MDFWP to obtain federal funds to match those contributed by Decker Coal Company

Regardless of previous delays, the MDFWP will complete technical survey work for the project in July, 1983 although a lease agreement has already been executed. (Conklin, personal communication, November 1982.)

### 3.2.8.3 Sheridan County

Private land accounts for approximately 63 percent of the 1,620,480 acres in Sheridan County, Wyoming. Federal ownership makes up 28 percent, with state and local lands comprising the remaining 9 percent. (Kanz 1976.) Bighorn National Forest lands constitute a major portion of federal lands in the county, with a complement of scattered BLM parcels totaling 51,540 acres.

The Wyoming Game and Fish Department (WGF) owns and manages five wildlife management and recreation sites in Sheridan County (see Table 3.2.8-1). These are the Kerns and Amsden Wildlife units, totaling approximately 9,147 acres, the State Bird Farm, State Fish Hatchery, and Tongue River Canyon Camping Area. There are campgrounds on the Amsden Unit; picnicking at the bird farm; picnic tables, toilets, and grills at the hatchery; and picnic tables and toilets at the canyon camping area (Kanz 1976). The most popular activity is hunting, with sportsmen coming mainly from Sheridan, Johnson, and Campbell counties. It is estimated that during the hunting season the two wildlife units are used to capacity, necessitating a yearly reevaluation of management strategies based on the harvest of various big and small game species (Shorma, personal communication, October 1982).

As in Montana, the predominance of private and inaccessible BLM lands in the eastern half of the county and state account for the recreational emphasis on accessible public land. In the case of hunting, another factor is the recent institution by private landowners of a trespass fee of as much as \$100 per day for hunting privileges. (Shorma, personal communication, October 1982.)

As shown in Table 3.2.8.1-4, the statewide increase in Wyoming Game and Fish Department license sales for popular big game species, game birds, and fish from 1970 to 1979 closely follows the population trends of the state. A statewide license price increase in 1980 accounts for the subsequent elk and deer sales decrease. Antelope were not affected because more licenses were available and certain licenses were sold at half price after opening day of the season. In 1981, there was a noticeable adjustment by hunters to the new license fees and therefore more sales. A similar trend is evident in Sheridan County (Table 3.2.8.1-5). Percentage change in resident license sales for selected species from 1970 to 1981 are as follows:

TABLE 3.2.8.1-4  
Statewide License Sales by Selected Type  
1970-1981

License Type	1970		1971		1972		1973		1974		1975	
	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident
Elk <sup>a</sup>	39,293	5,519	40,752	5,492	43,544 <sup>c</sup>	6,025	46,035	6,023	46,590	6,060	48,218	6,058
Deer	54,657	73,884 <sup>b</sup>	49,754	50,085	51,986 <sup>b</sup>	48,020	56,205	46,284	51,091	40,024	57,019	49,657
Antelope	20,144	16,077	18,286	19,187	16,576	22,322	20,598	21,078	22,095	25,456	24,406	36,768
Bird	26,189	2,070	28,810	1,786	29,519 <sup>c,d</sup>	2,064	26,327	2,086	27,344	2,832	27,021	2,955
Fishing	71,719	125,376	88,486	130,028	12,430 <sup>c,d</sup>	145,629	89,916	146,103	96,803	159,767	100,423	166,275

License Type	1976		1977		1978		1979		1980		1981	
	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident
Elk	53,622	6,092	55,246	6,083	61,924	6,080	64,046	6,056	56,447	6,086	58,209	5,992
Deer	61,568	51,833	66,010	42,378	78,751	37,354	81,291	34,291	79,200	30,858	82,058	33,402
Antelope	23,866	43,321	27,181	39,002	30,435	26,026	27,617	25,591	38,388 <sup>e</sup>	18,521	49,695	27,463
Bird	30,612	3,790	32,357	4,147	33,068	4,089	36,214	3,706	36,929	4,021	33,768	3,217
Fishing	105,805	182,768	110,700	179,615	117,935	190,617	125,539	168,099	128,438	134,756	138,066	143,010

Source: Wyoming Game and Fish Department, 1982.

<sup>a</sup>Nonresident elk licenses limited.

<sup>b</sup>No limit to nonresidents in 1970, limited by district 1971-81.

<sup>c</sup>Includes 1,864 combination resident deer, black bear, birds, small game, and fishing.

<sup>d</sup>Includes 3,759 combination resident elk, black bear, birds, small game, and fishing.

<sup>e</sup>No decrease in number sold because number of available licenses increased.

TABLE 3.2.8.1-5

Sheridan County Hunting Pressure by Selected Species  
1970-1981

License Type	1970		1971		1972		1973		1974		1975	
	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident
Elk	3,125	188	4,608	249	3,800	88	3,499	204	3,811	233	3,558	221
Deer	3,633	4,728	4,796	3,361	6,100	2,133	3,824	2,808	4,072	2,548	3,913	2,003
Antelope	122	37	294	90	181	49	222	62	205	120	192	246
Bird												
Pheasant <sup>a</sup>	1,715		2,311		1,679		923		1,944		1,061	
Blue Grouse <sup>a</sup>	149		455		485		310		357		429	

License Type	1976		1977		1978		1979		1980		1981	
	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident	Resi- dent	Nonres- ident
Elk	4,487	248	4,974	271	5,477	251	5,948	252	4,112	232	4,591	181
Deer	4,078	2,803	4,627	2,383	4,398	1,709	5,376	1,582	5,476	1,372	4,986	1,571
Antelope	219	500	305	322	429	276	513	302	512	167	704	335
Bird												
Pheasant <sup>a</sup>	1,482		1,649		1,611		1,496		1,600		1,666	
Blue Grouse <sup>a</sup>	498		791		922		1,064		892		930	

Source: Wyoming Game and Fish Department, 1982.

<sup>a</sup>Over 90 percent resident hunters; no breakdown on resident-nonresident. Hunting pressure is based upon that occurring on pheasants, the most popular game bird in the county.

<u>Species</u>	<u>Percent Change</u> <u>1970 to 1980</u>
Elk	47
Deer	37
Antelope	477
Pheasant	-3
Blue Grouse	524

County elk and deer license sales increased overall by 1981, but were influenced by the license price increase in 1980 in a manner similar to the state. Again, special factors influenced the continued rise in antelope license sales.

Over the eleven-year period, license sales for pheasant, the most popular game bird species in the county, decreased slightly due to the posting of private land, which serves as the primary habitat for pheasant in this county. At the same time, increased interest in and longer seasons for blue grouse hunting accounted for the 524 percent increase in grouse license sales. Nearly all blue grouse hunting takes place in the Bighorn National Forest where no limits are imposed. Additionally, 90 to 95 percent of all elk hunting in the area occurs in the national forest (Wilson, personal communication, November 1982).

As mentioned previously, WGF management strategies are reconsidered each year based on the harvest of various species during the hunting seasons. Restrictive measures are taken where necessary to preserve the viability of the species in different areas and, to some extent, to protect the interests of resident sportsmen.

### 3.2.9 Land Use

This section describes percentages of land ownership, present types of land use, and land use changes over the last decade and discusses local land planning institutions and policies governing future growth for the study area. Included in this discussion is a separate description of land use on the Crow Indian Reservation. Specific land ownership characteristics are discussed at the county level. The discussion varies somewhat by jurisdiction due to the degree of development and availability of data.

#### 3.2.9.1 Regional Overview

The two-county study area as a whole has experienced relatively little change in land use patterns during the coal development period of the 1970s. Agriculture remains the dominant land use; Big Horn County is currently 86 percent agricultural, down only slightly from 87 percent in 1970. In Sheridan County, agricultural land decreased from 1,508,373 acres in 1970 to 1,480,727 acres in 1980 (a change from 93 to 91 percent).

However, the land use changes that have occurred are concentrated in several areas, and in those areas the changes have significant implications. The county seats of Hardin and Sheridan have experienced growth and increased "urban" land uses. Hardin and Sheridan have expanded their corporate boundaries through annexations. In Sheridan County, the towns of Ranchester and Dayton and the Big Horn area absorbed more than one-third of Sheridan County's growth. Residential development was the primary land use change affecting these communities. Ranchester's population has more than tripled since 1970. Dayton's population has increased 77 percent. Lodge Grass has experienced some urban development within its corporate boundaries and considerable growth outside of its city limits.

Growth in or near Hardin and Sheridan has been relatively orderly because both cities enforce zoning and subdivision regulations.

The mine sites in Big Horn County (East Decker, West Decker, Spring Creek, and Westmoreland) include a total of 16,559 acres under permit. These lands have been, or will be, converted, at least temporarily, from agricultural use to coal mining and its associated activities. Residents in the Decker area perceive the change in land use due to coal production to have been relatively dramatic as they have seen large blocks of land in the area purchased by the coal companies. Because the entire permit area is frequently removed from agricultural production and is frequently posted to prevent hunting, a perception is created that large areas of land, unaffected directly by mining, are being removed from active use. Many of those interviewed expressed the feeling that the undisturbed or reclaimed lands within the permit area should be made available to grazing and hunting according to local "good neighbor" ethics. Residents are also concerned that land, once purchased by energy companies, will be lost to agricultural use even if mining is not undertaken. The proximity and number of existing and proposed mines exaggerate the concerns of Decker community residents. (Jobes, personal communication, January 1983.)

Much of the growth in the unincorporated areas of Sheridan and Big Horn counties has occurred as scattered individual parcels. Both counties exercise design control over subdivisions and mobile home parks and regulate sanitation facilities.

### 3.2.9.2 Local Land Use: Background, Issues, and Problems

#### Big Horn County

Big Horn County has a total land area of 3,214,720 acres, or 4,958 square miles. Its gross land use breakdown in 1970 and 1980 is shown in Table 3.2.9.2-1. Agriculture is the dominant land use in Big Horn County. In 1970, agriculture constituted 87 percent of the total land area of the county; in 1980, it comprised 86 percent. The development of five coal mines and a population increase of approximately 1,000 persons between 1970 and 1980 accounted for the decrease in agricultural acres.

The county commissioners formed a county planning board in 1973. The jurisdiction of the Big Horn County Planning Board includes Lodge Grass and all of the incorporated area exclusive of the Hardin city-county planning area and the two Indian reservations. In 1974, the county prepared a county comprehensive plan for the jurisdictional area of the county planning board. The land use goals and objectives set forth in the Big Horn County plan promote safe and convenient residential neighborhoods, discourage development of the county's best agricultural lands, encourage functional industrial and commercial development, and discourage scattered, low-density development in rural areas.

The county enforces subdivision regulations that cover subdivisions and mobile home parks. The county sanitarian reviews water, sewer, and solid waste facilities for building sites.

One land use problem facing Big Horn County is the scattered parcels and residences (particularly temporary) throughout the southern part of the county. Table 3.2.9.2-2 presents land use per capita ratios for existing and planned communities in the county.

#### Hardin

Hardin, the county seat, is the location of most of the commercial and industrial land within Big Horn County. Between 1970 and 1980, the city experienced a 21 percent population growth, but realized a 37 percent increase in housing units. New residential areas were developed, and several additions were annexed to the city.



TABLE 3.2.9.2-1  
Big Horn County Population and Land Use  
1970, 1980

Category	1970		1980	
	Acres	Percent	Acres	Percent
Population	10,057	--	11,096	--
Total Area	3,214,720	--	3,214,720	--
Land Use				
Agriculture	2,816,994	87.6	2,763,989	86.0
Rural Residential	NA	--	897	--
Commercial/Industrial	NA	--	198	--

Source: U.S. Census of Agriculture; Montana Department of Revenue.

Note: Land use categories include both public and private land. Information on other land uses, i.e., recreation and transportation, was unavailable.

NA = not available.

TABLE 3.2.9.2-2

Land Use: Population Ratios for  
Hardin, Lodge Grass, and Spring Creek

City	Land Use	Acres	Area/ Capita
Hardin (Pop: 3,300)	Residential:	151.0	.046 acres (or 1,993 sq ft)
	Commercial/Industrial:	65.0	.02 acres (or 858 sq ft)
	Public Facilities:		
	Recreation:	17.0	.005 acres (or 224 sq ft)
	Transportation:		
Lodge Grass (Pop: 790)	Residential:	24.0	.03 acres (or 1,323 sq ft)
	Commercial/Industrial:	7.4	.019 acres (or 408 sq ft)
	Public Facilities:	20.7	.026 acres (or 1,141 sq ft)
	Recreation:	1.3	.002 acres (or 72 sq ft)
	Transportation:	37.0	.047 acres (or 2,040 sq ft)
Spring Creek <sup>a</sup> (Pop: 3,000)	Residential:	194.0	.06 acres (or 2,817 sq ft)
	Commercial:	13.1	.004 acres (or 190 sq ft)
	Public Facilities:	65.0	.02 acres (or 944 sq ft)
	Recreation:	56.0	.019 acres (or 813 sq ft)
	Transportation:	29.4	.01 acres (or 427 sq ft)

Sources: Big Horn County Appraiser; Town of Lodge Grass, Montana, Socio-economic Survey, Rokita Associates, Inc., Hardin, Montana, March 1982; Spring Creek Environmental Impact Statement; Cal Cumin Associates, Billings, Montana, 1982.

<sup>a</sup>A proposed new town with a planned capacity of 3,000.

The city and county formed a city-county planning board in 1969. The board's jurisdiction includes the city of Hardin and an adjacent area extending south and west to the Crow Indian Reservation, north two miles, and west three miles from the city limits. In 1972, the city-county planning board prepared a comprehensive plan for the jurisdictional area. The plan identifies separation of incompatible land uses and high quality residential, commercial, and industrial development among the city's land use goals.

Hardin enforces a city zoning ordinance and city subdivision regulations. The city has used these measures to direct its growth in accordance with its 1972 plan.

### Spring Creek

Spring Creek is a planned "new town" located in southern Big Horn County near the Tongue River Reservoir. The community received county subdivision approval in 1979 and State Department of Health and Environmental Sciences (DHES) approval of the water and sewer system plans in 1980.

At present, Spring Creek is platted and consists of streets cut to grade (unpaved), sewer and water treatment systems and trunk lines, and the Big Horn County shop to service road maintenance requirements for the southern half of the county. The community's present population consists primarily of the personnel employed at the county shop and their families. These individuals are housed in mobile homes.

According to the plan, the total Spring Creek development would encompass about 360 acres. It was designed to accommodate a population of approximately 2,900 by 1985, with the residential development including 560 single-family units, 148 multifamily units and 256 mobile homes. The community's design provides for efficient land use through minimal road area, pedestrian and bicycle paths, ample recreation areas, and other sound planning principles. The EIA for the townsite development (Sanderson, Stewart and Muller Engineers 1978) presented the following growth forecast:

<u>Year</u>	<u>Population</u>
1978	446
1980	976
1982	1,490
1985	2,938

Due to the stagnation of coal development in the Spring Creek area, as well as to a variety of other circumstances, the forecast population growth has not materialized. At present, further development of the community is on hold. Moreover, experience with the Spring Creek Mine operating work force suggests that major coal company commitment and the creation of a "critical mass" of community infrastructure, commercial services, and neighborhoods would be required for the new town to attract an important share of mine-related population growth.

### Crow Reservation

This discussion gives particular attention to land classification of Indian and Bureau of Indian Affairs (BIA) lands. Acreages within the permit area for the proposed Youngs Creek Mine are also considered.

Ownership and land classification. The Crow Indian Reservation covers portions of Big Horn, Yellowstone, and Treasure counties in Montana. Table 3.2.9.2-3 shows the number of acres in each county by type of ownership for 1981. Of the total 1,541,343 acres of Indian and BIA land, 89 percent is located in Big Horn County and accounts for about 43 percent of the county's land base.

TABLE 3.2.9.2-3  
Land Ownership and Counties in which Reservation Lands are Located  
1981

County	Type of Ownership				Total Acreage on Reservation
	Tribal	Individual	Bureau of Indian Affairs (BIA)	Indian/BIA Total	Other <sup>a</sup>
Big Horn	371,319	1,005,929	1,401	1,378,648 <sup>b</sup>	NA
Yellowstone	19,643	128,042	0	147,685	NA
Treasure	9,289	5,721	0	15,010	NA
TOTAL	400,251	1,139,692	1,401	1,541,343	741,421 2,282,764

Source: Stanley Cline, Bureau of Indian Affairs, personal communication, November 1982; Harrison G. Fagg and Associates, Crow Comprehensive Plan, 1971.

Note: NA = not available.

<sup>a</sup>Includes fee patent, Bureau of Reclamation, National Park Service, State of Montana, and Townsite Lands.

<sup>b</sup>Total differs due to rounding.

Relatively little change in land use has occurred on the reservation in the last decade. Agriculture continues to dominate as the primary resource activity with range/grazing the single largest land use (USDI, BIA 1979).

Land use classification data for Crow Tribe and government lands under BIA jurisdiction provide a representative picture of the reservation as a whole.<sup>1</sup> These data, presented in Table 3.2.9.2-4, show 224,787 acres (14.4 percent of the total) in dry farming and irrigated cropland in 1970. By 1981, agricultural activity had grown to about 17 percent of the total land use, a net increase of 2.6 percent over the eleven-year period. Actually, dryland farming experienced an estimated 22 percent increase in acreage, while privately irrigated cropland remained unchanged, and federally funded irrigation projects decreased by 20 percent. The only other significant changes from 1970 to 1981 were a 67 percent increase in wildlands, and a 25 percent decrease in timberland/grazing due to enlargement of reservoirs.

Against a background of rangeland, the majority of irrigated cropland is located along the Bighorn and Little Bighorn rivers and their tributaries. Dryland farming is found (1) in dispersed and isolated plots to the east of the Bighorn rivers, (2) adjacent to irrigated croplands, and (3) in large contiguous tracts to the north and west of the Bighorn River. Timber lands are concentrated in the Pryor Mountains to the west and the Bighorn Mountains in the southwest, as well as in the Rosebud and Wolf mountains to the east. Seven unincorporated places and one incorporated town -- Lodge Grass -- are identified. The only notable water impoundments are Bighorn Lake (12,700 surface acres) and Lodge Grass Reservoir (estimated 485 surface acres) (USDI, NPS 1981; Chepulis, personal communication, December 1982). Transportation routes are discussed in Section 3.2.7.

Most of the estimated 15,772 acres required for the Youngs Creek mining project is rangeland, with approximately 3,595 acres of potential cropland or lands currently in improved pasture or hay. In addition, the area is traversed by two creeks. (USDI, BIA 1981.)

Land use planning issues. The land ownership pattern on the reservation is a checkerboard of scattered and isolated parcels owned by individual Indians, the Crow Tribe, numerous government agencies, and non-Indians. Although there are a few, large, contiguous sections owned by the tribe, fractioned land ownership creates critical problems to comprehensive land and resource management. Although tribal lands are not subject to the Montana civil laws that give individual counties and communities the power to plan for development or to establish and enforce zoning and subdivision regulations, the tribal constitution, authorized by federal law, establishes the power of the Crow Tribe to conduct their own resource planning activities. (Intermountain Planners, Inc. 1974.)

Initial planning steps taken in the last decade are evidenced by the completion of a land use study, a Crow Comprehensive Plan (1971), and the passing of the Crow Tribe zoning ordinance in 1976. The comprehensive plan provides detailed information on past, present, and future population and economic conditions, characteristic trends on the reservation, and projections of various land use needs to help tribal leaders determine direction for orderly growth and wise use of reservation resources (FAGG 1971). The zoning ordinance is the tribe's sole mechanism for regulating land use, open space, population density, height of buildings, and other facility developments. However, despite these first steps, there are no functioning land use planning or enforcement organizations for the reservation. Moreover, the zoning ordinance is unenforceable due to the absence of an accompanying zoning map (USDI, BIA 1979).

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<sup>1</sup>The reservation boundaries include approximately 741,421 acres of additional fee patent lands belonging to non-Indians and other governmental agencies.

TABLE 3.2.9.2-4

Land Use Classification of Crow Tribe and Government Lands Under BIA Jurisdiction  
1970, 1981  
(acres)

Land Use Class	1970			1981			Percent Change
	Tribal	Individual	Government	Tribal	Individual	Government	
Open Grazing	251,552	967,685	0	1,219,237	858,631	0	-4.8
Commercial Timber	19,850	14,371	60	34,281	13,171	60	-3.5
Noncommercial Timber	50,207	23,124	0	73,331	23,127	0	0.0
Timberland Grazing	NA	NA	NA	97,612	NA	NA	-24.8
Dry Farming	6,800	187,700	0	194,500	228,400	0	22.4
Cropland Irrigation Projects	1,297	23,831	86	25,214 <sup>a</sup>	19,058	134	-20.0
Private Irrigated Cropland	0	5,073	0	5,073	0	0	0.0 <sup>b</sup>
Wildlands (except Timber) <sup>c</sup>	9,732	0	0	9,732	0	0	67.4
Other Uses -- Nonagricultural <sup>d</sup>	0	0	1,255	1,255	0	1,207	-3.8
TOTAL <sup>e</sup>	339,438	1,221,784	1,401	1,562,623	1,147,460	1,401	-0.9

Sources: USOL, BIA, Land Use Inventory and Production Record, 1970; Natural Resource Information System Inventory and Production Report, 1981.

Note: NA = not available.

<sup>a</sup>An additional 14,683 acres in other ownership involved in Indian projects were reported in this classification.

<sup>b</sup>An additional 14,987 acres in other ownership involved in Indian projects were reported in this classification.

<sup>c</sup>Includes marshes, lands inaccessible to livestock, and water surfaces considered beneficial only for recreation or wildlife.

<sup>d</sup>Includes townsites; administrative, business, and home sites; cemeteries; and roads.

<sup>e</sup>Excludes timberland grazing totals which are dual use acreages accounted for in other timber classification.

### Lodge Grass

Lodge Grass is an incorporated town located on the Crow Indian Reservation. It participates on the Big Horn County Planning Board and is included in the 1974 county comprehensive plan. The corporate boundaries of Lodge Grass encompass 148 acres. The town's grid system has resulted in the construction and maintenance of an excessive amount of roadways to serve the population. Approximately 39 percent of the developed portion of the town is taken up by roads. The inefficiency is aggravated by a number of half streets and diagonal streets.

Lodge Grass also has a large amount of vacant and undeveloped land (40 percent). This prevents economical provision of services within the town, in spite of relatively small average residential lot size (1,323 sq. ft. per capita), typical of early Montana town plats. Light industrial uses (such as storage areas for heavy equipment, machinery, and automobiles) are scattered throughout the town, creating incompatibilities with residential neighborhoods.

The town's low density, uneconomical street patterns, and high percentage of vacant land create existing land use problems and present obstacles to obtaining orderly land use patterns in the future. Orderly future growth also is hindered by the pattern of tribal ownership and the fact that the town has extended city services outside its city limits. Nearly one-third of the housing units in the Lodge Grass urban area are outside the city limits.

The Big Horn County Plan recommends for Lodge Grass that --

- 1) Future expansion of industrial uses be encouraged in the northern portions of the town near the rail facilities,
- 2) Future growth be absorbed within the city limits, and
- 3) New development be planned to eliminate continuance of the current grid pattern.

### Sheridan County

Sheridan County comprises a total area of 1,620,420 acres. Of that total, 28 percent is in federal ownership, 9 percent in state ownership, and 63 percent in private ownership. The land use breakdown of Sheridan County's area is summarized in Table 3.2.9.2-5. Both Sheridan County's population and number of housing units increased approximately 40 percent between 1970 and 1980.

This growth is reflected in Table 3.2.9.2-5, where residential land use is shown to have increased from 27,790 acres in 1970 to 38,368 acres in 1980. Rural residential homesite acreage nearly doubled in those ten years (based on an assumed average of one-half acre per rural dwelling and 7,500 sq. ft. per lot in the unincorporated communities of Acme, Arvada, Monarch, and Parkman).

A very small amount of land is in commercial use and is concentrated in urban centers. The increase in urban uses created a proportional decrease in agricultural acres from 1,509,000 in 1970 to 1,481,000 in 1980.

The county has completed a 1981 update of its comprehensive plan. The plan identifies local flooding along Big Goose and Little Goose creeks and the Tongue River among the land use problems. The concerns of the community include haphazard development along the base of the Bighorn Mountains, scattered subdivision development throughout the county, and conversion of agricultural lands to residential and commercial uses.

The comprehensive plan sets forth many development policies to guide the future growth and development of the county. The policies promote high quality development and protection of natural and historic features, discourage development of agricultural lands, encourage compact development near existing urban

TABLE 3.2.9.2-5  
Sheridan County Population and Land Use  
1970, 1980

	1970	1980
Population	17,852	25,025
Land Use (acres)		
Agriculture	1,508,873	1,480,727
Rural Residential	535	1,029
Urban Residential	27,255	37,339
Commercial	14	18
Industrial	36,352	36,352
Public	47,481	6,504

Source: CSSA/Wyoming, An Update of the Sheridan County Comprehensive Plan, 1981.



centers, and specifically discourage development along the foothills on the east face of the Bighorn Mountains.

The county proposed zoning regulations to help implement the county policies but withdrew the proposal in the face of unpopularity among residents. Sheridan County enforces subdivision regulations and mobile home park regulations.

### City of Sheridan

In 1980, Sheridan had 15,146 people, or 51 percent of the population in Sheridan County. The 1980 census lists 6,425 housing units within the city. The city has a comprehensive plan and enforces a zoning ordinance within its corporate limits (Sanders, personal communication, March 1982). Under the zoning plan, 786 acres are zoned single-family residential, 376 acres multifamily residential, 310 acres commercial, and 555 acres industrial. Within the city, there is a total of 255,405 square feet of industrial buildings.

## 3.3 Big Horn County and Communities

### 3.3.1 General Description

Big Horn County is located in southeastern Montana and is composed primarily of semiarid plains country. The county's principal communities are Hardin, the county seat located just outside the reservation boundaries, Crow Agency, Lodge Grass, and Wyola, three of which are located in the Crow Indian Reservation along 1-90. In 1980, Big Horn County's total population of 11,096 people was composed of 48 percent Crow Indians, 7 percent Northern Cheyenne Indians, and 45 percent non-Indians. About 4,792 Crow Indians, or 89 percent of the county's Crow population, lived on the Crow Indian Reservation and about 583 Crow Indians, or 11 percent of the Crow population, lived in Hardin. The county's Northern Cheyenne Indian population lived exclusively on the Northern Cheyenne Indian Reservation. Of the county's 4,899 non-Indian persons, 2,632 people, or 54 percent, lived in Hardin. The remaining 2,267 non-Indians lived elsewhere in the county, both on and off the two Indian reservations.

Since 1970, Big Horn County's economy has suffered from the closure of a sugar beet plant but has enjoyed substantial growth in the mining sector with the opening of the Absaloka and Decker mines. Although this mining activity has had a greater effect on Sheridan, its effects in Big Horn County have stimulated employment growth in other economic sectors. However, despite the pace of energy development in the county, its economy has remained dominated by agriculture.

This section is divided into three parts. Section 3.3.2 portrays the existing environment of the county as a whole. Section 3.3.3 describes the existing environment in Hardin and the Hardin area. The Decker/Spring Creek area is described in Section 3.3.4. The Crow and Northern Cheyenne Indian reservations are described in subsequent sections.

### 3.3.2 Big Horn County

#### 3.3.2.1 Population and Economy

##### Population

Over the past forty years, the population of Big Horn County (see Table 3.3.2.1-1) has remained very stable. In 1980, the county had only about 700 more inhabitants than it had in 1940. Most of the popula-

TABLE 3.3.2.1-1  
Population Growth  
Big Horn County, Montana, United States  
1940-1980

Population	Big Horn County	Montana	United States
<u>1940 Population</u>	10,419	559,456	132,165,129
Percent change 1940-1950	-5.7	5.6	14.5
Percent average annual growth 1940-1950	-0.6	0.6	1.4
<u>1950 Population</u>	9,824	591,024	151,325,798
Percent change 1950-1960	1.9	14.2	18.5
Percent average annual growth 1950-1960	0.2	1.3	1.7
<u>1960 Population</u>	10,007	674,767	179,323,175
Percent change 1960-1970	0.5	2.9	13.3
Percent average annual growth 1960-1970	0.05	0.3	1.3
<u>1970 Population</u>	10,057	694,409	203,211,926
Percent change 1970-1980	10.3	13.3	11.5
Percent average annual growth 1970-1980	1.0	1.3	1.1
<u>1980 Population</u>	11,096	786,690	226,504,825

Sources: U.S. Department of Commerce, Bureau of the Census, 1980 Census Preliminary Population and Housing Unit Counts, January 1981; U.S. Department of Commerce, Bureau of the Census, 1970 Census of the Population, Montana, United States, Tables 17, 35, 48; U.S. Department of Commerce, Bureau of the Census, 1950 Census of the Population: Characteristics of the Population, Montana, United States, Table 41.

Note: These figures do not reflect the undercount of Crow Indians in the 1980 U.S. Census, as summarized in Table 3.1-1.

tion growth has occurred between 1970 and 1980, when the county population grew from 10,057 people to 11,096 people, an increase of 1,039 people. This increase can be attributed primarily to energy development as well as from an increased Indian population on the Crow and Northern Cheyenne Indian reservations.

The closure of the sugar beet processing plant in 1970, the construction of I-90, the dramatic increase in mining, and the steadily increasing Crow and Northern Cheyenne Indian populations are reflected in the tumultuous changes (see Table 3.3.2.1-2) in net migration through the last decade. However, from 1977 to 1980, the population has gradually increased and stabilized.

Table 3.3.2.1-3 illustrates the change in population by the county's four major divisions. The community of Lodge Grass and the Tongue River Division were the only areas to lose population over the last decade. The city lost a part of its economic base because of the sugar plant closure in 1970. The decline in the Tongue River area reflects a decline in agricultural employment and the completion of the Tongue River Dam repairs in the early 1970s. The population increase in the Hardin division can be attributed to the increase in mining and related employment in northern Big Horn County's Sarpy Creek area. The population increase of the two reservation divisions can be attributed to natural population increase.

Table 3.3.2.1-4 compares the age and ethnic composition of Big Horn County with Montana in 1970 and 1980. The county contains two Indian reservations and a very small population of Japanese-Americans. In 1970, the white population of Big Horn County comprised about 60 percent of the total population as compared to 96 percent of the total population in Montana. By 1980, the white population of the county had declined to about 52 percent of the total as compared to 94 percent for Montana. Over the same period, the nonwhite population of the county had risen from 40 to 48 percent of the total. This trend is due to a slight net out-migration of the county's white population and a stable, steadily increasing Indian population.

The median age of the county population in 1980 was 25.7, slightly lower than the 29.0 median age of Montana. As shown in the table, 40 percent of the county population was under 20 years of age in 1980, compared to 33 percent for the state as a whole.

Table 3.3.2.1-5 shows an increase in the working age cohorts (16 to 64 years) from 5,556 people in 1970 to 6,653 people in 1980 (55.2 percent and 60.0 percent of the respective populations). The percentage of the population over 65 years of age increased slightly over the decade. The percentage of youths less than 15 years old decreased slightly.

Historically, Big Horn County's household size has been higher than the state's. This larger household size can be attributed primarily to constrained housing conditions (see Section 3.3.2.3). As shown in Table 3.3.2.1-6, the county's average household size decreased from 3.92 persons in 1960 to 3.35 persons in 1980.

As shown in Table 3.3.2.1-7, 35.1 percent of the population 25 years and older in Big Horn County were high school graduates in 1980 and 16.5 percent had attended at least one year of college. This is slightly lower than the state average. As shown in the table, educational attainment in 1980 was considerably higher than it was in 1970.

As shown in Table 3.3.2.1-8, the labor force participation rate for men in Big Horn County has historically been lower than participation rates in Montana. The labor force participation rate for men declined from 75.3 percent in 1960 to 67.1 percent in 1970 and then increased to 77.6 percent in 1980. The labor force participation rate for women has been rising steadily from 25.9 percent in 1960 to 39.5 percent in 1970 and 46.7 percent in 1980.

TABLE 3.3.2.1-2

Components of Population Change  
Big Horn County  
1970-1980

Year	Population	Change		Components of Change			
		Number	Percent	Births	Deaths	Net Migration	Net Migration Percent
1970	10,057						
1971	10,100	43	0.4	249	86	-120	-1.2
1972	10,300	200	2.0	204	100	96	1.0
1973	10,300	-	0.0	225	110	-115	-1.1
1974	10,500	200	1.9	231	107	76	0.7
1975	10,900	400	3.8	211	98	287	2.7
1976	10,600	-300	-2.8	282	83	-499	-4.6
1977	10,700	100	0.9	265	97	-68	-0.6
1978	10,800	100	0.9	225	96	-29	-0.3
1979	11,100	300	2.8	245	86	141	1.3
1980	11,096	-4	-0.04	287	107	-184	-1.7

Source: State of Montana, Department of Health, Vital Statistics, 1970-1980

Note: These figures do not reflect the undercount of Crow Indians in the 1980 U.S. Census, as summarized in Table 3.1-1. Percent changes are computed based upon the previous year's total population.

TABLE 3.3.2.1-3

Community Population  
Big Horn County  
1970 and 1980

Community	Population		Change		Proportion of Total Change Accounted for by Each Community	
	1970	1980	Number 1970-1980	Percent 1970-1980		
Crow Reservation Division	5,318	5,645	327	6.1	31.5	
Lodge Grass	806	771	-35	-4.3	-3.4	
Hardin Division	3,732	4,249	517	13.9	49.8	
Hardin City	2,733	3,300	567	20.7	54.6	
Northern Cheyenne Division	760	1,013	253	33.3	24.3	
Tongue River Division	247	189	-58	-23.5	-5.6	
TOTAL	10,057	11,096	1,039	10.3	100.0	

Source: U.S. Department of Commerce, Bureau of Census, 1980 Advanced Reports Census of Population and Housing, Montana, Washington, D.C.; 1970 Census of Population, Montana Number of Inhabitants, Part A, Washington, D.C.

Note: Because of changes in the geographic definition of Census Enumeration Districts, community definitions presented in this table differ from those used in the analysis. Those community definitions are based on 1980 Census Enumeration Districts; these are based on 1970 Census Enumeration Districts. 1970 populations readjusted to fit 1980 Census EDs.

Note: These figures do not reflect the undercount of Crow Indians in the 1980 U.S. Census, as summarized in Table 3.1-1.

TABLE 3.3.2.1-4  
Distribution of Population by Age, Race,  
and Place of Residence  
Big Horn County and Montana  
1970, 1980

Characteristics of Population	1970		Montana Percent	1980		Montana Percent
	Big Horn County Number	Percent		Big Horn County Number	Percent	
<u>Age Distribution</u>						
Under 5	1,104	11.0	8.2	1,184	10.7	8.2
5 - 9	1,273	12.7	10.5	1,066	9.6	7.7
10 - 14	1,193	11.9	11.2	1,044	9.5	7.9
15 - 19	985	9.9	10.2	1,164	10.5	9.5
20 - 24	697	6.9	7.3	954	8.5	9.4
25 - 29	656	6.5	6.1	968	8.7	9.1
30 - 34	577	5.7	5.5	860	7.8	7.8
35 - 39	514	5.1	5.2	664	6.0	6.1
40 - 44	506	5.0	5.5	535	4.8	5.1
45 - 49	509	5.1	5.5	479	4.3	4.6
50 - 54	512	5.1	5.6	440	4.0	4.7
55 - 59	476	4.7	5.0	439	4.0	4.6
60 - 64	362	3.6	4.1	398	3.6	4.4
65+	693	6.9	9.9	901	8.1	10.7
<u>Median Age</u>	23.4		27.1	25.7		29.0
<u>Ethnic Distribution</u>						
White	6,018	59.8	95.7	5,781	52.1	94.1
Nonwhite	4,039	40.2	4.3	5,315	47.9	5.9
TOTAL POPULATION	10,057	100.0	100.0	11,096	100.0	100.0

Source: U.S. Department of Commerce, Bureau of the Census, 1970 Census of the Population: Characteristics of the Population, Montana, Tables 19, 20, 34, 35, 46, 50; U.S. Department of Commerce, Bureau of the Census, 1980 Census of the Population: Characteristics of the Population, Montana, Tables 19, 20, 46.

Note: These figures do not reflect the undercount of Crow Indians in the 1980 U.S. Census, as summarized in Table 3.1-1.

TABLE 3.3.2.1-5  
Population by Age and Sex  
Big Horn County  
1970 and 1980

Sex and Age Group	1970	Percent of Total	1980	Percent of Total	Average Annual Growth 1970-1980
Total Population	10,057	100.0	11,096	100.0	1.0
0- 5	1,343	13.4	1,403	12.6	0.4
6-15	2,465	24.5	2,139	19.3	-1.4
16-24	1,444	14.3	1,870	16.9	2.6
25-44	2,253	22.4	3,027	27.3	3.0
45-64	1,859	18.5	1,756	15.8	-0.6
65 and Over	693	6.9	901	8.1	2.7
Male Population	4,990	49.6	5,480	49.4	0.9
0- 5	673	6.7	718	6.5	0.6
6-15	1,217	12.1	1,051	9.5	-1.5
16-24	672	6.6	923	8.3	3.2
25-44	1,132	11.3	1,497	13.5	2.8
45-64	942	9.4	870	7.8	-0.8
65 and Over	354	3.5	421	3.8	1.7
Female Population	5,067	50.4	5,616	50.6	1.0
0- 5	670	6.7	685	6.2	0.2
6-15	1,248	12.4	1,088	9.8	-1.4
16-24	772	7.7	947	8.5	2.1
25-44	1,121	11.1	1,530	13.8	3.2
45-64	917	9.1	886	8.0	-0.3
65 and Over	339	3.4	480	4.3	3.5

Source: U.S. Department of Commerce, Bureau of the Census, 1970 Census of the Population: Characteristics of the Population, Montana, Table 35.

Note: These figures do not reflect the undercount of Crow Indians in the 1980 U.S. Census, as summarized in Table 3.1-1.

TABLE 3.3.2.1-6  
Average Household Size  
Big Horn County, Montana, and United States  
1960, 1970, 1980

Year	Big Horn County	Montana	United States
1960	3.92	3.25	3.29
1970	3.74	3.06	3.11
1980	3.35	2.40	2.75

Source: U.S. Department of Commerce, Bureau of the Census, 1980 Census Preliminary Population and Housing Unit Counts, January 1981; U.S. Department of Commerce, Bureau of the Census, 1970 Census of the Population, Montana, United States, Tables 22, 36, 54; U.S. Department of Commerce, Bureau of the Census, 1960 Census of the Population: Characteristics of the Population, Montana, United States, Table 28.



TABLE 3.3.2.1-7

Educational Attainment of Persons Twenty-Five and Older  
Big Horn County and Montana  
1970 and 1980

Highest Education Level Completed	1970		1980	
	Big Horn County Number	Percent	Big Horn County Number	Percent
Less than 8 Years	1,666	34.7	1,035	18.2
9-11 Years	1,005	20.9	951	16.7
High School Graduate	1,221	25.4	2,000	35.2
1-3 Years of College	456	9.5	971	17.1
4 or more Years of College	452	9.5	727	12.8
				14.3
				11.3
				37.9
				19.0
				17.5

Sources: U.S. Department of Commerce, Bureau of the Census, 1970 Census of the Population: Characteristics of the Population, Montana, United States, Tables 51, 88, 120; U.S. Department of Commerce, Bureau of Census, 1980 Census.

TABLE 3.3.2.1-8

Labor Force Participation Rates  
Big Horn County and Montana  
1960, 1970, 1980

Year/Sex	Participation Rates	
	Big Horn County	Montana
1960		
Male	75.3	77.5
Female	25.9	32.6
1970		
Male	67.1	71.3
Female	39.8	36.9
1980		
Male	77.6	NA
Female	46.7	NA

Source: U.S. Department of Commerce, Bureau of Census, Characteristics of the Population of Montana, 1960 General Social and Economic Characteristics, Table 83; Characteristics of the Population, Montana, 1970, Table 121; 1980 Census of Population and Housing, File 3A, Department of Community Affairs, Montana State Department of Commerce.

Note: NA = not available.

The 1970 occupational distribution for Big Horn County did not differ greatly from that of Montana (see Table 3.3.2.1-9). The county had slightly fewer professionals, sales workers, and craftsmen and a greater percentage of agricultural (farmers and farm workers) workers than the state. By 1980 (see Table 3.3.2.1-10), the county had experienced significant structural change in its economy and showed a higher percentage of professionals, craftsmen, and operatives. Between 1970 and 1980 agricultural-related occupations retained their same relative positions.

### Economy

Between 1960 and 1980, as shown in Table 3.3.2.1-11, Big Horn County's economy experienced the typical rural decline in agriculture but was offset by increases in mining, construction, and services. Between 1970 and 1980, Big Horn County was the site of construction and operations of the Absaloka and Decker mines. During the decade, mining employment (by place of residence) grew to 292 workers and services employment from 468 workers to 1,274 workers.

Table 3.3.2.1-12 clearly shows the evolution of Big Horn County's economy during the 1970s. In 1970, little energy development had occurred. By 1980, mining employment (by place of work) had grown by 1,345 percent, construction by over 900 percent, wholesale trade by 350 percent, and most other employment by between 20 and 100 percent. Farm proprietors declined by about 14 percent. The manufacturing decline reflects the closure of the sugar plant in Hardin. Overall, total employment grew by about 50 percent over the decade.

Table 3.3.2.1-13 presents the distribution of basic and nonbasic employment within major industrial sectors for 1980, when about 51 percent of total employment was basic. Mining and TCPU accounted for 11 percent of basic employment, construction for 3 percent, agriculture for 41 percent, and trade and services and government for 44 percent. About 49 percent of Big Horn County's employment in 1980 was nonbasic. Hardin is the county's major trade center and is the site for both first-order and some second-order purchases from the county and small parts of surrounding counties. First- and second-order purchases by the southern half of the county leak primarily to Sheridan (Wyoming).

Big Horn County's labor force, employment, and unemployment trends are presented in Table 3.3.2.1-14. The total labor force increased by 62 percent during the decade, about the same rate as total employment. During this period, the unemployment rate fluctuated between 6 and 8 percent.

### Income

Energy-related growth in Big Horn County between 1970 and 1980 brought about a marked increase in per capita personal income from \$3,125 in 1970 to \$4,518 in 1980 (constant 1972 dollars). As Table 3.3.2.1-15 shows, total personal income (in constant terms) nearly doubled between 1970 and 1980. The largest component of personal income in Big Horn County was labor and proprietors' income, which grew 113 percent during the 1970s. Dividends, interest, and rent, as well as transfer payments, comprised nearly 13 percent of personal income in 1980, up from 11 percent in 1970. Transfer payments also increased during the period.

### 3.3.2.2 Social Life and Cultural Diversity

#### Social history

The history of settlement and political development in Big Horn County has created patterns and processes of social and political interaction that will significantly affect the response to and consequences of additional population growth and/or coal development in the area. As discussed in more detail else-

TABLE 3.3.2.1-9

Occupation of Employed Persons 16 Years and Over  
Big Horn County and Montana  
1970

Occupation	Big Horn County		Montana	
	Number	Percent	Number	Percent
Professional, Technical, and Kindred Workers	432	13.7	35,088	14.3
Managers and Administrators, except Farm	302	9.5	24,878	10.2
Sales Workers	130	4.1	15,535	6.4
Clerical and Kindred Workers	358	11.3	35,330	14.4
Craftsman, Foreman, and Kindred Workers	305	9.6	31,022	12.7
Operatives, except Transport	184	5.8	17,565	7.2
Transport Equipment Operatives	81	2.6	9,345	3.8
Laborers, except Farm	135	4.3	11,386	4.6
Farmers and Farm Managers	554	17.5	18,844	7.7
Farm Laborers and Farm Foreman	298	9.4	9,621	3.9
Service Workers, except Private Household	375	11.9	32,982	13.5
Private Household Workers	9	0.3	3,012	1.2
TOTAL EMPLOYED	3,163	100.0	244,608	100.0

Source: U.S. Department of Commerce, Bureau of the Census, 1970 Census of the Population: Characteristics of the Population, Montana, United States, Tables 54, 91, and 122.

TABLE 3.3.2.1-10

Occupation of Employed Persons 16 Years and Over  
Big Horn County and Montana  
1980

Occupation	Big Horn County		Montana	
	Number	Percent	Number	Percent
Professional, Technical, and Kindred Workers	589	14.9	33,789	10.5
Managers and Administrators, except Farm	372	9.4	40,381	12.6
Sales Workers	321	8.1	41,667	13.0
Clerical and Kindred Workers	581	14.7	40,613	12.7
Craftsman, Foreman, and Kindred Workers	397	10.0	40,168	12.5
Operatives, except Transport	72	1.8	11,214	3.5
Transport Equipment Operatives	167	4.2	17,503	5.5
Laborers, except Farm	161	4.0	15,016	4.7
Farmers and Farm Managers	680	17.2	30,468	9.5
Farm Laborers and Farm Foreman				
Service Workers, except Private Household	605	15.3	48,195	15.1
Private Household Workers	17	0.4	1,302	0.4
TOTAL EMPLOYED	3,962	100.0	320,316	100.0

Source: U.S. Department of Commerce, Bureau of the Census, 1980 Census of the Population: Characteristics of the Population, Montana.

TABLE 3.3.2.1-11

Employment by Industry by Place of Residence  
Big Horn County  
1960, 1970, 1980

Industry	Employment		Percent Total Employment		Percent Change	
	1960	1970	1970	1980	1960-1970	1970-1980
Ag., Forestry, & Fisheries	1,195	885	680	28.0	17.2	-23.2
Mining	30	0	292	0.0	7.4	NA
Construction	161	162	219	5.1	5.5	0.6
Manufacturing	164	317	43	10.0	1.1	93.3
TCPU <sup>a</sup>	119	132	139	4.2	3.5	10.9
Wholesale & Retail Trade	418	544	589	17.2	14.9	30.1
FIRE <sup>a</sup>	53	62	113	2.0	2.9	17.0
Services	400	468	1,274	14.8	32.2	17.0
Government	385	593	613	18.7	15.5	54.0
TOTAL EMPLOYMENT	2,925	3,163	3,962	100.0	100.0	7.5
						25.3

Source: U.S. Department of Commerce, Bureau of Census; Mountain West Research-North, Inc., Sept. 1982.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

Note: NA = not available.

TABLE 3.3.2.1-12  
Employment by Type and Industrial Sector by Place of Work  
Big Horn County  
1970, 1980

Industry	Employment		Percent of Total Employment		Percent Change 1970-1980	Average Annual Growth 1970-1980
	1970	1980	1970	1980		
Farm Proprietors	593	508	15.6	9.0	-14.3	-1.5
Nonfarm Proprietors	290	351	7.6	6.2	21.0	1.0
Total Wage and Salary Employment	2,913	4,800	76.7	84.8	64.8	5.1
Farm	447	421	11.8	7.4	-5.8	-0.6
Nonfarm	2,466	4,379	65.0	77.4	77.6	7.8
Private	1,701	3,383	44.8	59.8	98.9	5.9
Ag. Services, Forest, Fish	36	58	0.9	1.0	61.1	4.9
Mining	67	968	1.8	17.1	1,344.8	30.6
Construction	60	611	1.6	10.8	918.3	26.1
Manufacturing	329	32	8.7	0.6	-90.3	-20.8
TCPU <sup>a</sup>	91	109	2.4	1.9	19.8	1.8
Wholesale Trade	28	126	0.7	2.2	350.0	16.2
Retail Trade	413	443	10.9	7.8	7.3	0.7
FIRE <sup>a</sup>	61	92	1.6	1.6	50.8	4.2
Services	616	944	16.2	16.7	53.2	4.4
Government	765	996	20.2	17.6	30.2	2.7
TOTAL EMPLOYMENT	3,796	5,659	100.0	100.0	49.1	4.1

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, 1976-1980, Washington, D.C., April 1982. Includes full- and part-time employment.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

TABLE 3.3.2.1-13

Basic and Nonbasic Employment by Industrial Sector by Place of Residence  
Big Horn County  
1980

Industrial Sector	Total Employment		Basic Employment		Nonbasic Employment	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Agricultural Proprietors	508	11.3	508	22.3	0	0.0
Agricultural Labor	421	9.4	421	18.5	0	0.0
Agriculture, Forestry, Fisheries	75	1.7	0	0.0	75	3.4
Mining	239	5.3	239	10.5	0	0.0
Construction	225	5.0	70	3.1	155	7.0
Manufacturing	49	1.1	0	0.0	49	2.2
TCPU <sup>a</sup>	125	2.8	16	0.7	109	4.9
Trade	665	14.8	36	1.6	629	28.6
FIRE <sup>a</sup>	131	2.9	13	0.6	118	5.4
Services	1,049	23.4	559	24.5	490	22.2
Government	996	22.2	418	18.3	578	26.2
<b>TOTAL EMPLOYMENT</b>	<b>4,483</b>	<b>100.0</b>	<b>2,280</b>	<b>100.0</b>	<b>2,203</b>	<b>100.0</b>

Source: Mountain West Research-North, Inc., 1982. Includes full- and part-time employment.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.



TABLE 3.3.2.1-14

Labor Force, Employment and Unemployment  
Big Horn County  
1970-1980

Year	Labor Force	Total Employment	Total Unemployment	Unemployment Rate	Montana Unemployment Rate
1970 <sup>a</sup>	3,664	3,496	168	4.6	4.3
1971 <sup>a</sup>	3,759	3,530	229	6.1	4.8
1972	3,704	3,481	223	6.0	4.8
1973	3,865	3,608	257	6.6	4.8
1974	4,177	3,856	321	7.7	5.2
1975	4,157	3,862	295	7.1	6.4
1976	4,307	4,052	255	5.9	6.1
1977	4,517	4,156	361	8.0	6.4
1978	5,519	5,168	351	6.4	6.0
1979	5,888	5,592	296	5.0	5.1
1980	5,953	5,583	370	6.2	6.0

Source: Montana Department of Labor and Industry, Montana Employment and Labor Force, February 1981.

<sup>a</sup>1970 and 1971 data based on number of jobs at place of work. 1972 and subsequent data based on number of workers at place of residence.

TABLE 3.3.2.1-15

Components of Personal Income  
Big Horn County  
1970, 1980  
(thousands of 1972 dollars)

Category	Components of Personal Income 1970	1980	Percent of Total Personal Income 1970	1980	Average Annual Growth Rate 1970-80
Labor and Proprietor's Income	\$26,053	\$55,521	82.8	110.5	7.8
Less: Personal Contributions for Social Insurance	851	3,190	-2.7	-6.3	14.1
Plus: Dividends, Interest, and Rent	3,340	6,344	10.6	12.6	6.6
Plus: Transfer Payments	3,259	6,170	10.4	12.3	6.6
Plus: Residency Adjustment	-356	-14,604	-1.1	-29.1	45.0
Personal Income by Place of Residence	31,445	50,241	100.0	100.0	4.8
Per Capita Income	3,125	4,518	--	--	3.8

Source: Mountain West Research-North, Inc., 1982.

where (see HRA 1983 and AITS 1983 for references), the entire area of Big Horn County (and much more) was once owned by the Crow. These lands were successively diminished by federal actions and cessions. In 1900, the Crow Indian Reservation still encompassed most of the land that later became Big Horn County. At this time, the Crow dominated the population of the area. Except for the BIA staff at Crow Agency and some missionaries at St. Charles and St. Xavier, few non-Indians lived on the reservation at that time, although nearby the reservation the small ranching community of Decker and the trading community of Hardin had established anglo residents, and several large, anglo-owned sheep ranching operations were leasing reservation land for grazing.

By 1906, following the General Allotment Act in 1887, land speculators had moved into the area anticipating the opening of the lands that had been ceded by the Crow Tribe to white settlement. The reservation did become open, with the result that over the next decade an increasing portion of the population on the reservation were non-Crow. Most of these settlers were ranchers and farmers. After 1901, most of the active farming and ranching operations on the reservation were conducted by non-Indians, and the Tribe had lost ownership of major portions of reservation land. The pattern established early in the century -- white ownership of ranching and agricultural land within the reservation and the leasing of additional grazing land within the reservation boundaries to non-Indian ranchers -- has persisted to the present, contributing to the organizational and jurisdictional complexity present in Big Horn County today.

During the early 1900s, despite hopes for growth of the nature observed in Billings and Sheridan, the economy of Big Horn County remained limited to agriculture and livestock. Hardin was selected as the county seat when Big Horn County was formed from portions of Yellowstone and Rosebud counties in 1913 during Montana's major homestead period. By 1920, the county's population had grown to almost 7,000, of which only 2,090 were members of the Crow Tribe (29.9 percent).

Contrary to land developers' expectations, the population of the county did not grow rapidly. Agricultural productivity, aside from some notable corporate exceptions, remained low, and the density of population remained below the levels necessary to support extensive commercial or service development. Throughout the first half of the century, the county's economy continued to be dominated by agriculture and ranching, though the levels of crop, cattle, and sheep production fluctuated widely. During the recurrent periods of severe agricultural decline due to poor weather or low farm prices, the presence of the Crow Reservation provided a stability not found in other agriculturally based counties, as treaty agreements maintained a flow of federal funds through the tribe to the local economy. Some successful efforts at corporate farming (notably the Campbell farm) and agricultural processing (for example, the Holly Sugar Beet Refinery) occurred during the 1920s and 1930s, providing some economic diversification, but, as throughout the nation, by the 1940s and 1950s, the rural farm population fell as changing agricultural practices resulted in land consolidation and a loss of agricultural employment opportunities. As displaced and retiring anglo agricultural workers left the county (many of the retirees going to Sheridan) and the natural increase of Indians exceeded that of the remaining non-Indian population, the proportion of Indians in the county once again began to increase.

Although some diversity of employment was provided by construction of the Yellowtail Dam (completed in 1966) and I-90 (under construction during the 1960s), the expansion of oil and gas development, and the construction and operation of the Sargy Creek and Decker/Spring Creek coal mines, agriculture remained the mainstay of Big Horn County's economy. This was especially true in terms of the employment of county residents.

#### Social organization

Throughout its history, the governmental entities and various social groups in Big Horn County have engaged in a continual process of interaction and change as they sought to establish and clarify authorities, responsibilities, and relationships. Major, recurrent changes in federal policy complicated this

effort, and, as of 1983, significant areas of ambiguity and conflict continued to affect the political and social processes of the county. As the relative size of the Crow component of the county's population continued to increase, non-Crow residents became increasingly attuned to the potential implications for county and municipal government of more active Crow involvement. The demonstration of Crow voting power during the 1982 elections heightened this issue among anglo residents of the county who are particularly concerned about the potential for Crow residents to influence taxing policies in the county when they are exempt from many of the county (and state) taxes due to their reservation status.

As discussed in sections 3.3.2.4 and 3.3.2.5, the provision of facilities and services in Big Horn County is complicated by overlapping authorities and jurisdictions and by the significant role played by the BIA, whose policies and administrative procedures are established almost exclusively outside the local area. As discussed more thoroughly in sections 3.3.4.3 and 3.4.3.3, the long distances, poor transportation links, inclusion in different trade areas, differences in economic interests, and differences in social networks among residents of the different geographical subareas have left the county relatively fragmented, with little overall cohesion that would promote effective collaborative action. The prevailing conservative attitude toward government (less is better) has discouraged county leadership from emerging and/or taking advantage of the potential county tax base to expand county coordinative and planning activities. Although the county established a planning board in the early 1970s, largely in response to the perceived threat of massive coal development and population growth, the county has demonstrated little ability or commitment to the establishment of a decision-making process that effectively incorporates the various stakeholder groups in the county.

The population growth forecast for Big Horn County under baseline and with-project scenarios is moderate and is expected to occur at a moderate pace (approximately 47 percent over 35 years), since almost all of the projected growth is due to natural increase of the existing population, uncertainty regarding the future is somewhat reduced. The county tax base is currently strong due to the presence of the existing coal operations and will improve with additional mines located within the county (outside the reservation). In addition, the Montana Coal Board has demonstrated an ability and willingness to assist with the expansion of facilities and services resulting from coal-related growth. Consequently, it appears that the principal social concerns for Big Horn County (as a governmental unit), Hardin, and the Northern Cheyenne involve issues of institutional development, intergovernmental relationships, and conflict between governmental and social groups, rather than the potential changes in social organization from project-related population growth. (As discussed in sections 3.3.4.3 and 3.4.2.3, the same is not true for the Decker area communities and the Crow reservation where the potential impacts are more wide-ranging). In general, the analysis of change is therefore primarily a problem of assessing baseline conditions; the effects of additional coal mines in the Decker area will be marginal (although the Youngs Creek Mine has some potential for greater impact due to its potential for significantly affecting Crow employment and income). Since a detailed analysis of these essentially nonproject issues was not included in the scope of work, a more complete description of the existing and baseline social environment in Big Horn County remains an important topic of further investigation.

#### Indicators of well-being

The countywide indicators of well-being have been discussed in Section 3.2.3. Where appropriate, further discussion is provided in the community discussions that follow.

##### 3.3.2.3 Housing

This section contains a brief overview of Big Horn County's residential growth since 1970 and a review of current market conditions. Housing trends for all of Big Horn County are presented as well as factors that influence supply and demand on the nonreservation part of the county and their effect on the local

housing market and on the county's capacity to absorb new residential growth. Inventories of 1980 housing in the Hardin and Decker/Spring Creek areas and on the Northern Cheyenne Indian Reservation are presented in subsequent sections. A more complete discussion of housing trends on the Crow Indian Reservation is presented in Section 3.4.2.4.

#### Recent housing trends

Table 3.3.2.3-1 presents U.S. Census data on Big Horn County's total housing stock (including reservation housing) for 1970 and 1980. It is important to note that this information is presented only to portray growth over the period. The housing counts used for projection purposes have been revised to correct for an undercount of Indian housing units and are presented below. Big Horn County's housing stock grew from 2,900 units in 1970 to 3,867 units in 1980, an increase of 33.3 percent. As shown in this table, single-family units accounted for about 42 percent of the county's growth over the 1970-1980 period. Multifamily units accounted for about 23 percent of the growth, and mobile homes accounted for the remaining 35 percent.

Of the 967 housing units added to Big Horn County's inventory between 1970 and 1980, 370 units or 38 percent were added in Hardin. These additions consist of units built within the 1970 city limits and of units that were added on land annexed by Hardin between 1970 and 1980. Another 36 percent of the new units were built on the Crow Indian Reservation. The Big Horn north and Northern Cheyenne Indian Reservation allocation areas accounted for 12 percent each of the new units, and the Decker/Spring Creek area accounted for the remaining 2 percent.

#### Revised housing unit count

As noted in Section 2.3.3.3, the 1980 housing unit count for Big Horn County was revised by Mountain West Research to correct for a probable undercount of Indian housing units. When the census count of Indian units is increased by 20.7 percent, the result is the housing unit data presented in Table 3.3.2.3-2. This revised data will be used as the 1980 housing inventory in the housing forecasts.

#### Housing demand conditions

Housing demand in Big Horn County increased temporarily in the early and mid-1970s because of immigration due to coal-related activity in the county. However, while some of this demand has continued through the late 1970s and early 1980s, higher mortgage interest rates have suppressed overall housing demand in Big Horn County.

Higher mortgage interest rates and higher construction costs have also affected the mix of demand for different types of housing units in Big Horn County. Many local and in-migrating families who would prefer to own single-family detached housing have instead bought multifamily duplex, fourplex, or apartment units or mobile homes or have decided to rent housing. If these trends continue, Big Horn County's overall mix of housing units will continue to shift away from single-family detached units to multifamily units and mobile homes.

Another effect of high interest rates has been increased demand for low-income, government-subsidized units. Local builders from Hardin and Billings have constructed many of these types of homes within Hardin in the last five years. However, local officials indicated that most space available for low-income units within Hardin have been utilized and that additional low-income units will be constructed primarily outside the current city limits.

TABLE 3.3.2.3-1  
Big Horn County  
Housing Units by Type

Type of Unit	1970	1980	Change 1970 to 1980		
			Number of Units	Percent of Change (year-round)	Percent 1970-1980 Growth
Total Housing Units	2,900	3,867	967		33.3
Year-round Units	2,866	3,719	853	100.0	29.8
Single-family detached	2,420	2,777	357	41.9	14.8
Multifamily	273	467	194	22.7	71.1
Mobile homes	173	475	302	35.4	174.6

Source: U.S. Department of Commerce, Bureau of the Census, Detailed Housing Characteristics for Montana, 1970, 1980.

TABLE 3.3.2.3-2  
Revised Housing Unit Counts  
Big Horn County  
1980

Allocation Area	Indian Units	Non-Indian Units	Total Units
City of Hardin	146	1,226	1,372
Hardin Area (excluding city)	0	364	364
Crow Reservation West	108	39	147
Crow Reservation Central	99	233	332
Crow Reservation Southwest	462	267	729
Crow Reservation Northwest	448	159	607
Northern Cheyenne Reservation	217	71	288
Decker/Spring Creek Area	0	96	96
TOTAL	1,480	2,455	3,935

Source: Mountain West Research-North, Inc., 1982.

Local banks have been able to accommodate demands for mortgage loans, selling them when necessary to secondary money markets. The banks expressed a note of caution about making mortgage loans to mining construction and operations workers, stating that a stable employment history and probability of staying in Big Horn County were just as important as household income when making their lending decisions. Overall, however, the local availability of mortgage loans is unlikely to be a demand constraint in the area.

#### Housing supply conditions

This section reviews government policy and regulations, land availability, and housing conditions and then assesses the local builders' capacity to construct housing units. A final subsection describes the county's temporary lodging facilities that could be used to accommodate temporary increases in housing demand.

Government policies and regulations. Although Big Horn County has not experienced energy-related housing demand on the same scale as either neighboring Rosebud County in Montana or Sheridan County in Wyoming, the county's land use plans have been designed to accommodate large-scale housing development. Like other counties in Montana and Wyoming energy-impacted areas, Big Horn County's primary housing goal is to channel residential growth into existing communities and to avoid rural sprawl (Sheridan County Growth Management Plan).

Land availability. Although most of the land within the city limits of Hardin is now occupied by residential and commercial land uses, the city has demonstrated its willingness to expand its boundaries to encompass new residential subdivisions. These new subdivisions have been and probably will continue to be developed to the south and west of Hardin to avoid residential locations near I-90, which runs to the north and east of town. In addition, the other nonreservation areas of the county have good potential for continued growth of more sparse housing developments that do not require centralized sewer or water facilities.

Housing conditions. The latest data on Big Horn County housing conditions are the 1980 U.S. Census information on age of structures. According to the census, 18 percent of the county's housing was built between 1970 and 1974 and 18 percent was built after 1974. Another 28 percent was built between 1950 and 1969, and the remaining 35 percent was built before 1950. More detailed information on housing conditions of the Crow Indian Reservation is presented in Section 3.4.2.4.

Developers' and builders' capacity. Throughout the 1970s, most of the new housing in Big Horn County has been constructed by local contractors. A few houses have been built by nonlocal contractors from Billings. The builders of these new homes have relied on subcontractors from within the county but have purchased most of their building materials in Billings, where they are available on a wholesale basis. Local builders and developers have the capacity to construct about forty housing units per year. This level could be increased through the use of modular or "factory-built" housing and through the installation of mobile homes. Of course, any increase in demand for housing in Big Horn County could also be met by contractors from Billings who are close enough to Hardin to compete effectively with local contractors.

Development finance. Local developers and builders have financed residential construction in two ways. First, they have obtained loans from banks in both Hardin and Billings. Second, they have financed some smaller subdivisions through the use of Special Improvement District (SID) taxes and by using sales profits on the first lots and/or homes sold to finance additional sewer and water facilities and home con-



struction. Given this demonstrated flexibility and experience, it would appear that neither small- nor large-scale residential developments in Big Horn County would be constrained by the availability of development financing.

Construction labor. Hardin area residential construction labor has not been attracted by coal construction opportunities in Colstrip and the Decker area, primarily because of distance. When coupled with the availability of construction labor in Billings, Hardin area contractors appear to be well protected against labor shortages.

Temporary lodging facilities. Of Big Horn County's six motels, five are located in Hardin and one is located near Crow Agency. The six motels have a total of seventy rooms and are about 95 percent occupied during June, July, and August and 40 percent occupied the remainder of the year. The county has three commercial campgrounds, two in Hardin and one near Crow Agency.

Housing market conditions. Previous sections have portrayed demand and supply conditions and described Big Horn County's residential growth in the 1970s. This section presents a brief summary of current market conditions, focusing on prices, occupancy status, vacancy rates, and the availability of residential lots in nonreservation areas.

Housing prices. Prices for new single-family detached housing units with 1,500 sq. ft. of space, garage, and basement have remained constant since 1980 at about the \$65,000 level. Older houses with the same characteristics but slightly larger lot sizes average about \$60,000. Smaller, government subsidized single-family units are selling for about \$45,000 to \$50,000. Modular houses without land are selling for about \$45,000 for a 1,500 sq. ft. unit with garage.

Rentals for multifamily units average about \$250 to \$300 per month for two-bedroom units. Mobile homes are selling for about \$25,000 to \$30,000, with pad rentals in established mobile home parks ranging from \$85 to \$100 per month. (Rader, personal communication, October 1982.)

Occupancy status and vacancy rates. The 1980 U.S. Census indicated that approximately 65 percent of Big Horn County's housing units were owner-occupied and 35 percent were renter-occupied. If housing demand were to increase without an adequate supply response, people who own houses might face increased incentives to sell their homes but otherwise would remain unaffected. However, renters of existing units would very likely face increased rental rates under such conditions.

In October 1982, about twenty houses were for sale in Hardin and the Hardin area. The local vacancy rate for rental units had dropped because of high interest rates and stood at about 5 percent in October 1982. Although many low-income units for the poor and the elderly have recently been built in Hardin, some unsatisfied demand for these types of units still exists. (Rader, personal communication, October 1982.)

Lot prices and availability. Prices for developed lots (with sewer and water facilities in place) average about \$10,000 for 10,000 sq. ft. lots in subdivisions that have recently been annexed by Hardin. Larger rural residential lots without facilities are selling for \$2,000 to \$4,000 an acre.

As of October 1982, virtually all of the lots in central Hardin were occupied. However, about 77 single-family and multifamily lots and 60 mobile home spaces were available in subdivisions that had

recently been annexed by Hardin. Another 130-unit subdivision immediately outside the city limits is being planned and will be annexed by Hardin after it is approved. Although rural Big Horn County currently has only one subdivision near Hardin with fifteen available lots, other residential parcels are available at dispersed locations to the south and west of town.

#### 3.3.2.4 Facilities and Services

The public facilities and services operated by Big Horn County include the following:

- 1) General government
- 2) Engineering and planning
- 3) Sheriff
- 4) Fire
- 5) Hospital
- 6) Human and health services
- 7) Social Services (in conjunction with the state of Montana)
- 8) Library
- 9) Parks and recreation
- 10) Solid waste
- 11) Education (See Section 3.3.2.6.)

##### General government

The general government function of Big Horn County includes the county commissioners' office, the county assessor, the clerk and recorder, treasurer, county clerk, and collection of fees and fines (Seader, personal communication, November 1982).

The existing county courthouse, constructed in 1936 under the WPA program, contains 25,392 sq. ft. The building was renovated in 1980-81 at a cost of \$1.1 million. This cost included the addition of 18,846 sq. ft. of law enforcement facilities that are attached to the courthouse. This renovation was funded by a coal board grant from coal severance taxes. (Seader, personal communication, November 1982.)

General government personnel in Big Horn County remained at fifty-two in FY 1981 and 1982; there are fifty-one personnel in FY 1983. General government personnel include employees in the following departments: commissioners, clerk and recorder, treasurer, justice of the peace, clerk of court, attorney, surveyor, custodial, and extension. (Seader, personal communication, November 1982.)

##### Engineering and planning

The planning function in Big Horn County is carried out by the Big Horn County Planning Board with professional assistance from Cumin Associates in Billings. The development regulations give the board discretion to require paved streets, parks, etc., when appropriate. There have been no developments in Big Horn County for at least three years. A comprehensive plan was prepared in 1974 and updated in 1980 in order to comply with FmHA 601 grant requirements. (Cough, Cumin, personal communication, December 1982.)

Big Horn County has a total of 1,584 miles of road; 127 miles are paved and 1,457 are graveled. Most of the roads are in good condition. There are, however, four bridges (93-foot span) which need to be replaced: three in the Wyola area and one near Hardin. There is no current cost estimate for replacing these bridges. (Culp, personal communication, December 1982.)

The county performs all its own maintenance on equipment and vehicles. The county shop of 5,000 sq. ft., constructed in 1952, is inadequate. It has only three bays, and about half the space is taken up with offices, lavatories, a lunchroom, and storage areas. Blueprints for another shop have been prepared. The new shop of 7,000 sq. ft. would be located at the county gravel pit about one mile outside of Hardin and would cost between \$700,000 and \$800,000. (Culp, personal communication, December 1982.)

Big Horn County has the following equipment:

- 1) Five belly dumps; the year models range from 1962-1975. The county tries to purchase good, used equipment. The existing trucks are in good condition, and there are no plans to replace any of them in FY 1984.
- 2) Two tandem trucks. Both are scheduled for replacement in FY 1984 at a cost of \$50,000 each.
- 3) Nine patrol graders. Five are in Hardin, two are in Decker, and two are in Lodge Grass. Year models range from 1968-81. The county tries to replace one patrol grader at least every other year. In FY 1984, \$109,000 will be budgeted to purchase one new patrol grader.
- 4) Eleven pickup trucks and two crew cab pickup trucks. Pickups are scheduled for replacement on a regular basis. Two will be in the FY 1984 budget at about \$7,000 each.

Big Horn County realizes cost savings by performing road construction and maintenance in-house. In 1982, they overlaid 5.8 miles of road for \$165,000; they hauled, mixed, and laid all the material in-house. Nine additional miles were overlaid for a cost of \$389,000; the mixing was contracted, but the hauling and laying were done in-house. They also overlaid a 1.5-mile stretch of road in 1982 for \$26,940, with all labor done in-house. In 1982, chip and seal improvements were made on 8.5 miles of road at a cost of \$26,740.

Chip and seal costs approximately \$5,000 a mile and an annual average cost per mile for gravel road maintenance is \$700 to \$1,000, including snow removal, blading, and pulling in the shoulders in the spring. Maintenance costs will decline from previous years because Big Horn County will do rock crushing, rolling, and laying in-house, too. (Culp, personal communications, December 1982.)

#### Sheriff

The Big Horn County sheriff serves the entire county including the Crow Indian Reservation. The sheriff does not have jurisdiction over tribal members on the reservation, however. The sheriff and the city police department were consolidated in 1977. Hardin pays 32.5 mills to the county annually for police protection. The sheriff's department is housed in the addition to the county courthouse; the space totals 18,846 sq. ft. There are twelve jail cells each with a capacity of three occupants. The average daily occupancy rate is twenty persons. (Rider, personal communication, November 1982.)

Big Horn County has a total of sixteen full-time, authorized deputies. Fifteen are currently employed. There is one resident deputy in Decker and one resident deputy in Lodge Grass. Additionally, there are four full-time jailers and one part-time jailer, two full-time secretaries, and one part-time cook. The number of personnel has remained fairly constant over the last three years. (Rider, personal communication, November 1982.)

The Big Horn County Sheriff's Department has nine vehicles. One is a 1981, four-wheel drive, which cost \$9,000 with a trade-in; the other cars are newer, with the exception of one 1977 and one 1976 pickup truck. The sheriff's department tries to buy new cars every year. Three new cars have been ordered and will cost approximately \$8,500 per car with trade-in. The sheriff's department averages 35,000 to 40,000 miles per year per vehicle. Vehicles are maintained by the car dealers in town. The sheriff does not have an estimated maintenance cost per vehicle per year. (Rider, personal communication, November 1982.)

In 1980, the sheriff's department handled 5,034 traffic-related incidents and about ten to twelve other cases per month. In 1981, it handled 5,555 traffic-related incidents and about ten to twelve other cases per month. The crime rate and the work load have stayed fairly constant over the last three years. Statistics indicate that more traffic-related incidents are generated in the county than in Hardin. (Rider, personal communication, November 1982.)

The dispatch function is consolidated throughout Big Horn County. It services the road department, ambulance, highway patrol, sheriff's department, and the fire department. Currently, there are seven full-time dispatchers and two part-time dispatchers. (Rider, personal communication, November 1982.)

### Fire

The Big Horn County Fire Department serves the entire rural area of Big Horn County. The fire department is funded through the county's general fund and is manned by volunteers: ten to twelve in Hardin, nine in Lodge Grass, five in Decker, and six to seven in Pryor. (Culp, personal communication, December 1982.)

Big Horn County has no additional fire equipment needs at this time; its present equipment, listed below, is in good condition (Culp, personal communication, November 1982):

- 1) Three federal government-owned jeep units with 250-gallon tanks, one each located in Pryor, Hardin, and Lodge Grass
- 2) Seven civil defense, 6 x 6 units, kept at farm locations throughout the county
- 3) Two 500-gallon trucks purchased in 1978 through a coal board grant and located in Hardin and Decker
- 4) One 1948, 1,200-gallon pumper, located in Hardin
- 5) Two county-owned, federal government jeep units purchased in 1979 and located in Decker and Hardin

Big Horn County has a 2,500 sq. ft. fire shed in Hardin that can store three pieces of equipment. The metal building was constructed in 1979 at a cost of \$32,000. Other equipment is stored in a municipal building in Lodge Grass and in the county building in Decker. (Culp, personal communication, December 1982.)

Dispatching is handled by the county road department during business hours and by the centralized dispatch in the sheriff's department during nonbusiness hours. There are about 400 calls a year -- the majority are for grass fires, and about 10 to 15 a year are for structural fires. The county has a national Insurance Service Organization (ISO) rating of ten on a ten point scale. This is the lowest quality rating but typical of rural volunteer fire departments. (Culp, personal communication, December 1982.)

### Hospital

The Big Horn County Hospital is a political subdivision and is organized as a nonprofit governmental agency serving residents of Big Horn County. The hospital was originally constructed in 1956 with twenty-four beds; in 1971, the hospital's configuration was changed to sixteen acute-care and thirty-four long-term-care hospital beds. Prior to 1979, the hospital was leased. In 1979, however, the county set up a nonprofit corporation, the Big Horn Hospital Association, which is now responsible for day-to-day operation of the hospital. The county continues to purchase all capital equipment. In 1980 and 1981, the occupancy rate for the acute-care beds was about 37 percent. Two new physicians were recruited in 1981, and the occupancy rate jumped to 56 percent. The thirty-four long-term nursing beds are at full occupancy. (Sinclair, personal communication, November 1982.)

Personnel have remained fairly constant over the last three years, although the number of physicians decreased from four in 1981 to three full-time equivalents in 1982. Currently, there are two full-time

physicians and two half-time physicians; one half-time physician is an assistant. Additionally, there are six full-time LPN's, six full-time administrative personnel, and two part-time administrative personnel on an as-needed basis. The staff is responsible for all fifty hospital beds, both acute-care and long-term-care. (Sinclair, personal communication, November 1982.)

The operation and maintenance expenses in FY 1981 were \$970,725, including depreciation, while revenues were \$918,872. Expenses in FY 1982 were \$1,316,999, while revenues were \$1,405,103. For FY 1983, \$1,237,343 has been anticipated for expenses, while \$1,316,974 has been projected for revenues. All operating expenses are generated from fees and charges.<sup>1</sup> (Sinclair, personal communication, November 1982.)

In recent years, the hospital has undergone some minor renovation. For example, the equipment in the radiology department was replaced in 1980 at a cost of \$106,000, doubling its capacity. The laboratory was expanded in 1981 to comply with state requirements. For these modifications, space was taken from elsewhere in the hospital; the building itself was not expanded. The 25,000 sq. ft. hospital will be renovated and expanded by 8,000 sq. ft. in 1983. The heating system is being replaced, the emergency room is being expanded, office space and storage space are being added, laundry facilities are being expanded, and a gable roof is being put on the existing structure. The anticipated cost of this renovation/expansion program is \$1.2 million. Eighty percent (\$876,000) of the money is coming from a coal board grant. The balance is coming from county revenues. The current renovation includes insulating rooms and installing energy-efficient windows.

In 1982, Big Horn County constructed a thirty-six-bed nursing home two blocks from the hospital with a twenty-unit retirement home attached to the nursing home. It is expected to open in 1983. A bond issue was passed for \$2.5 million to fund this facility. Additionally, there was a \$200,000 coal board grant to support its construction. (Sinclair, personal communication, November 1982.)

#### Human and health services

Ambulance. The ambulance service in Big Horn County was established in 1982 and is contracted. Two ambulances are ready for dispatch at all times, and one is on standby for an estimated sixty calls a month. There are two medically-trained personnel in the ambulance dispatch center twenty-four hours a day and two additional people on standby. This service costs \$14,000 a month. However, part of this cost is recovered through a contract with the Indian Health Agency on the Crow Reservation (\$3,600 per month) and part is recovered from third-party service payments. (Lippert, personal communication, December 1982.)

Public health. The Big Horn County Health Department in Hardin includes public health nursing; school nursing; home health nursing; Women, Infants, and Children (WIC); mental health; and alcohol and chemical abuse. Currently, the department employs 7 full-time people: 2.5 full-time equivalent (FTE) nurses, 1 nutritionist, 0.5 FTE WIC aide, 1 secretary, 1 alcohol/drug counselor, and 1 mental health psychologist. The county health department serves the entire county. Records of clients and caseloads are not maintained. Four public health nurses on the Crow Reservation provide services to Indians only, while the county health department provides services to all Big Horn County residents, regardless of race. The staffing and service levels have remained about the same for the past three years. (Lind, Silvano, personal communication, November 1982.)

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<sup>1</sup>These figures do not include the county's contribution for capital equipment for the hospital.

## Social and Welfare Services

Montana Department of Social and Rehabilitation Services. The Montana Department of Social and Rehabilitation Services (SRS) oversees all social and welfare assistance programs in the state in accordance with the guidelines mandated by Title XX of the Federal Social Security Act of 1974.<sup>1</sup>

SRS has divided the state of Montana into five regions for planning and administrative purposes. Each region has been further divided into districts, and then into single- or multi-county administration units.

SRS has classified social services into the following groups: economic assistance, community services (including child protection and foster care), developmental disabilities services, rehabilitative services, and veterans affairs. Most economic assistance and community services are administered to residents directly through the local county welfare offices; however, others, such as visual or developmental disability screening, are usually available only through the district office, from a regional specialist, or through a private agency. The mode of service delivery is determined by the specialized nature of a service, by the level of demand for a service, and by the availability of qualified specialists.

The county public welfare office administers the following programs under each of the above categories:

### Economic Assistance

- Aid to Families with Dependent Children
- Emergency Assistance to Families
- Food Stamps
- General Assistance to Low-income Disadvantaged Individuals
- Medicaid
- Supplemental Security Income
- Transient Assistance

### Community Services

- Adoption
- Day Care for Children
- Family Planning
- Foster Care for Adults
- Foster Care for Children
- Health Service for Adults
- Health Services for Children
- Homemaker Services
- Information, Referral, and Follow-Up
- Institutional Placement and Counseling
- Legal Services
- Protective Services for Adults
- Protective Services for Children
- Services to Unmarried Parents
- Family Centered Early Intervention
- Volunteers to Youths
- Youth Resident Treatment

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<sup>1</sup>Title XX of the Social Security Act specifies that services are to be equally available to all citizens, and provides for federal funds to support the services, in part.

#### Developmental Disabilities

- Daily Living Training for Developmentally Disabled Persons
- Evaluation, Diagnostic, Treatment, and Follow-Along Services for Developmentally Disabled
- Respite Care of Developmentally Disabled Persons
- Training and Support for Families with a Developmentally Disabled Member
- Transportation for Developmentally Disabled Persons
- Vocational Services (Day Services) for Developmentally Disabled Persons

#### Rehabilitative Services

- Services to Mentally or Physically Handicapped
- Rehabilitation
- Prevention
- Orientation and Mobility

#### Veterans Affairs

- Advice and Assistance

In 1982, the office had 10 staff members and 2,040 sq. ft. of space, both of which were considered adequate. However, the staff and space would not be adequate if the county offices were asked to deliver additional services or to serve a larger population. (Hart, personal communication, 25 April 1983.)

#### Library

The Big Horn County Library, located in Hardin, serves the entire county, with the city contributing some funds to the county library program. The library belongs to the Montana State Southeast Library Federation. In addition to book-lending, grade school classes come to watch movies and check out books. There is a story hour each Wednesday for preschoolers and a Head Start program each Friday. The library is open six days a week. The library system currently employs three full-time personnel, two half-time personnel, and one quarter-time person who works with the bookmobile program. One half-time person was added to the staff in 1982. Otherwise, the personnel level has remained the same for the last three years. The library was originally constructed prior to 1920 as a Carnegie library. It was last remodeled in 1981 for energy efficiency. New windows were installed, walls were insulated, and the basement was dug away and repoured. The building has not been expanded but has been completely renovated. (Miller, personal communication, November 1982.)

There are currently about 17,000 titles in the library. The book budget in FY 1983 is \$15,000; in FY 1982 it was \$13,000; and in FY 1981 it was \$12,000. Circulation in FY 1981 was 39,715, and 1,575 new titles were added that year. Circulation for FY 1982 was irregular due to the remodeling; however, circulation is steadily increasing. The library facility is adequate to handle the current population and would only need to expand if the population grows significantly. (Miller, personal communication, November 1982.)

#### Parks and recreation

Big Horn County oversees two parks and recreation functions: the county fair board and the county park board. The county fairgrounds, located in Big Horn County but in close proximity to Hardin, includes a racetrack, grandstand, and cattle buildings. A variety of events occur on an annual basis at the fairgrounds. The buildings are old but have recently been renovated. For example, a building was constructed underneath the grandstand, which contains a new kitchen and a large meeting room for events such as 4-H club meetings, motorcycle club meetings, and square dancing. This structure was paid for by the county. (Seader, personal communication, November 1982.)

The county park board was appointed by the county commissioners several years ago when a citizens' group approached them about constructing some softball fields. Currently, four, lighted softball fields have been constructed at the fairground with county funds. A concession stand was built in 1982 for about \$40,000. The ball diamonds have been constructed in the last three years, mostly from volunteer labor and donated supplies and equipment. A sprinkler system has been installed on the softball fields and, in 1982, a playground was added. It is the only park facility in the county. (Seader, personal communication, November 1982.)

### Solid waste

Solid waste for Big Horn County is part of a tri-county system which was established in 1978. Forty yard containers are located at sites throughout the county, the collection is handled through a contracted service, and the disposal occurs in Hardin. Hardin owns the landfill, but it is operated by Big Horn County. A total of four personnel are associated with the county's solid waste system. The initial system was funded by a coal board grant in 1978. The operating and maintenance costs are now funded through a mill levy associated with the countywide district. The approximately forty-acre landfill is expected to be adequate for another twenty to twenty-five years. The volume of solid waste is about 53,400 cubic yards per year. (Lippert, personal communication, December 1982.)

### 3.3.2.5 Fiscal

Table 3.3.2.5-1 provides financial data on the governmental operations of Big Horn County, Montana. The following analysis summarizes the current financial status of the county and its capacity to handle future growth.

The population of Big Horn County has not grown much over the past few years, and although its taxable valuation increased \$16 million between FY 1982 and 1983, much of this growth is due to gross proceeds derived from the Spring Creek Mine. The taxable valuation will rise and then fall in the future to coincide with changes in coal production. Anticipated production, in the short-term, is somewhat uncertain, especially at the new Spring Creek Mine. But long-term coal production is expected to be strong. Therefore, the long-term taxable valuation of the county should remain strong.

The county is currently taxing at a total of about twenty-two mills, with fifteen mills for the general fund, three for poor fund, one for bridge fund, and three for bond retirement (nursing home). The general fund levy is limited to twenty-five mills, so the county has an additional 10 mills margin to levy if necessary. The property tax is the main source of revenues for most of the county funds. Growth in the tax base or the capacity to increase levies may therefore be the key to the county's ability to respond to growth-induced increases.

As shown in Table 3.3.2.5-1, general fund annual revenues have remained at about the same level over the past three years, providing about \$2.5 million per year. Of this total, property tax yields about 60 to 70 percent. Intergovernmental revenues are the next largest single source, providing \$300,000-400,000 per year. This does not include federal revenue sharing of about \$100,000 that goes into a separate fund for special projects. Licenses and service charges are a stable, local source of income, averaging about 10 percent of the total. Fines and miscellaneous revenues make up a total of another 10 percent.

County expenditures have risen faster than the annual rate of inflation, showing about 20 percent average annual growth for both total and per capita expenditures. Of the total \$3.2 million budgeted for FY 1983, operating costs comprise about 90 percent, with capital outlay for improvements and equipment making up the balance.



TABLE 3.3.2.5-1

Financial Profile  
Big Horn County  
FY 1981-1983

Item	FY 1981 (Audited Amounts)	FY 1982 (Actual or Estimated)	FY 1983 (Budgeted)
<b>Resources</b>			
Population	12,180	12,245	12,290
Taxable Valuation	\$109,319,684	\$108,103,481	\$123,081,134
Per Capita	\$8,975	\$8,828	\$10,073
Revenue per Mill	\$109,320	\$108,103	\$123,801
Federal Revenue	\$89,776	\$99,658	\$102,784
Property Tax Levies <sup>a</sup>	18.99 mills	26.35 mills	21.87 mills
General <sup>b</sup>	14.67 mills	13.75 mills	14.80 mills
Special Purpose <sup>c</sup>	4.32 mills	5.29 mills	4.08 mills
Debt Serviced	0 mills	7.31 mills	2.99 mills
<b>General Fund Position</b>			
Revenues <sup>e</sup>	\$2,578,038	\$2,493,721	\$2,543,355
Property Tax	\$2,584,950 (61%)	\$1,470,147 (59%)	\$1,832,255 (72%)
Other Taxes <sup>f</sup>	\$40,645 (2%)	\$24,802 (1%)	\$3,000
Licenses and Service Charges	\$304,363 (12%)	\$340,714 (14%)	\$235,472 (9%)
Fines and Forfeitures	\$78,890 (3%)	\$117,970 (5%)	\$100,800 (4%)
Intergovernmental	\$460,500 (18%)	\$404,523 (16%)	\$278,879 (9%)
Miscellaneous	\$108,690 (4%)	\$130,383 (5%)	\$100,200 (4%)
Expenditures	\$2,257,169	\$2,489,936	\$3,244,466
Operating Costs	\$1,846,065 (82%)	\$2,278,772 (92%)	\$2,949,314 (91%)
Amount (%) Capital	\$411,104 (18%)	\$211,164 (8%)	\$295,152 (9%)
Expenditures per Capita	\$185.32	\$203.34	\$263.99
<b>Other Funds</b>			
Road and Bridge Funds <sup>g</sup>			
Current Revenue Total	\$1,788,242	\$2,226,195	\$1,815,057
Expenditure Total	\$1,019,028	\$1,940,152	\$2,544,385

TABLE 3.3.2.5-1 (cont.)

Financial Profile  
Big Horn County  
FY 1981-1983

Item	FY 1981 (Audited Amounts)	FY 1982 (Actual or Estimated)	FY 1983 (Budgeted)
County Planning Fund <sup>h</sup>			
Revenue Total	\$28,085	\$15,187	\$10,000
Expenditure Total	\$28,893	\$3,843	\$18,011
Debt Status			
G.O. Debt Balance <sup>i</sup>	\$2,503,204	\$2,325,000	\$2,150,000
Remaining Debt Capacity <sup>j</sup>	\$22,641,000	\$22,539,000	\$26,324,000
Debt Service (N.H. Bond)		\$349,000	\$350,000

Source: 1980 Census; 1982 and 1983 population estimate, Mountain West Research-North, Inc., 1982.

<sup>a</sup>Includes countywide levies only (except school levies).

<sup>b</sup>For general county purposes -- goes into General Funds.

<sup>c</sup>Includes poor fund and bridge fund.

<sup>d</sup>For principal and interest on nursing home bonds.

<sup>e</sup>Does not include cash balances carried forward. This information was unavailable.

<sup>f</sup>Motor vehicles and corporate license taxes.

<sup>g</sup>These are separate funds; the road fund is the largest and is supported by a separate mill levy (12.13 mills in 1982) on unincorporated county valuation.

<sup>h</sup>This is jointly supported by the county and city of Hardin.

<sup>i</sup>Bonds issued in 1981 for the nursing home retirement complex.

<sup>j</sup>Based on 23 percent of county taxable valuation, less the outstanding balance.

The road and bridge funds are supported primarily by property taxes and various motor vehicle and fuel taxes. The road fund can levy up to 15 mills on the unincorporated county valuation (at present the levy is 12.13 mills). The bridge fund is currently taxing at 0.86 mills on total county valuation. Over the last three fiscal years total revenues and expenditures for the road and bridge funds have averaged about \$2 million annually.

The county planning fund is supported jointly by the county and city of Hardin, each levying a small property tax to provide revenues. The level of current revenues has decreased since 1980, and for FY 1983 only \$18,000 was appropriated for city-county planning.

In 1981, Big Horn County issued \$2.5 million in bonds for the nursing home retirement complex, levying a tax to pay debt retirement costs. Currently, a balance of about \$2.15 million remains, with annual principal and interest payments of about \$350,000. The bonds are due to be retired in 1996. Based on 23 percent of its taxable valuation, Big Horn County has a remaining capacity to levy about \$26 million in general obligation bonds.

In conclusion, Big Horn County's tax base has grown substantially over the past three years, primarily due to gross proceeds derived from mine operations. General fund expenditures have grown to meet higher costs, but the annual revenues have not kept up. The county however, does have an additional 10 mills available for general fund revenues. The 10 mills will raise about \$1.2 million. Taxable valuation of the county is likely to increase substantially until around the year 2000 due to increased coal production. The value will decline in response to decreased production after 2000. With the only outstanding bonds amounting to a \$2 million balance, Big Horn County has a remaining capacity of about \$26 million to increase general obligation debt, if needed for capital projects.

### 3.3.2.6 Schools -- Facilities/Services and Fiscal

#### Facilities and services

Education throughout Big Horn County is provided by public elementary schools in five communities and four rural places, two private elementary schools, three public high schools, and Little Big Horn College (Table 3.3.2.6-1 presents a listing of the public and private schools in Big Horn County). Figure 3.3.2.6-1 shows the boundaries of the school districts in the county.

In the 1982-83 school year, the public high schools and the public elementary schools had total enrollments of approximately 670 and 1,600 students, respectively.<sup>1</sup> Section 2.3.4 discusses the definition of the school enrollment population presented in the impact analysis of this report.

There are 64 teachers employed in the high schools, while the public elementary schools employ 137 teachers. With the exception of the schools in Lodge Grass, facilities for the public high schools and the public elementary schools have surplus capacity at current levels of demand.<sup>2</sup>

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<sup>1</sup>Other high school students attend schools away from Big Horn County in communities such as St. Labre, Colstrip, and boarding schools located in other states (BIA 1981). Students from Decker often attend school in Wyoming.

<sup>2</sup>Personnel and facilities space (sq. ft.) are utilized as the variables for the analysis of impacts pertaining to public schools. Land acquisition is excluded from the analysis of impacts because each school district currently owns lands that are expected to be adequate for future needs (Anderson, LaCounte, personal communication, November 1982; Lynch, personal communication, October 1982).

TABLE 3.3.2.6-1

## Status of Existing Personnel and Capital Facilities for Schools on the Crow Reservation

Services	Personnel	Capital Facilities
High School District No. 1 (Hardin)	30 teachers adequate	89,600 sq. ft. surplus capacity
Elementary School District No. 17H (Hardin)	56 teachers adequate	201,600 sq. ft. <sup>a</sup> surplus capacity
Elementary School District No. 17H (Crow Agency)	22 teachers adequate	52,000 sq. ft. surplus capacity
Elementary School District No. 17H (Ft. Smith)	5 teachers adequate	16,000 sq. ft. surplus capacity
Elementary School District No. 16 (Community)	2 teachers adequate	3,200 sq. ft. surplus capacity
Elementary School District No. 17K (Big Bend)	1 teacher adequate	1,000 sq. ft. b surplus capacity
High School District No. 2 (Lodge Grass)	23 teachers adequate	57,600 sq. ft. adequate capacity
Elementary School District No. 27 (Lodge Grass)	33 teachers adequate	sq. ft. not available <sup>c</sup> deficit capacity
Elementary School District No. 27 (Corral Creek)	1 teacher adequate	1,000 sq. ft. b surplus capacity
Elementary School District No. 29 (Wyoila)	6 teachers adequate	10,800 sq. ft. surplus capacity
Elementary School District No. 1 (Squirrel Creek)	1 teacher adequate	1,000 sq. ft. b surplus capacity

TABLE 3.3.2.6-1 (cont.)

## Status of Existing Personnel and Capital Facilities for Schools on the Crow Reservation

Services	Personnel	Capital Facilities
High School District No. 3 (Pryor) (Plenty Coups High School)	11 teachers adequate	42,000 sq. ft. surplus capacity
Elementary School District No. 2 (Pryor)	9 teachers adequate	7,200 sq. ft. surplus capacity
St. Charles Mission School (Pryor-private)	7 teachers	sq. ft. not available
Pretty Eagle School (St. Xavier-private)	10 teachers	sq. ft. not available
Little Big Horn College	2 full-time instructors 16 part-time instructors deficit	12,000 sq. ft. deficit capacity

Source: Mountain West Research-North, Inc., 1982.

Notes: Private schools and colleges are excluded from analysis in the impact sections of this report. Refer to Section 2.3.4 for discussion about the school enrollment population presented in this report.

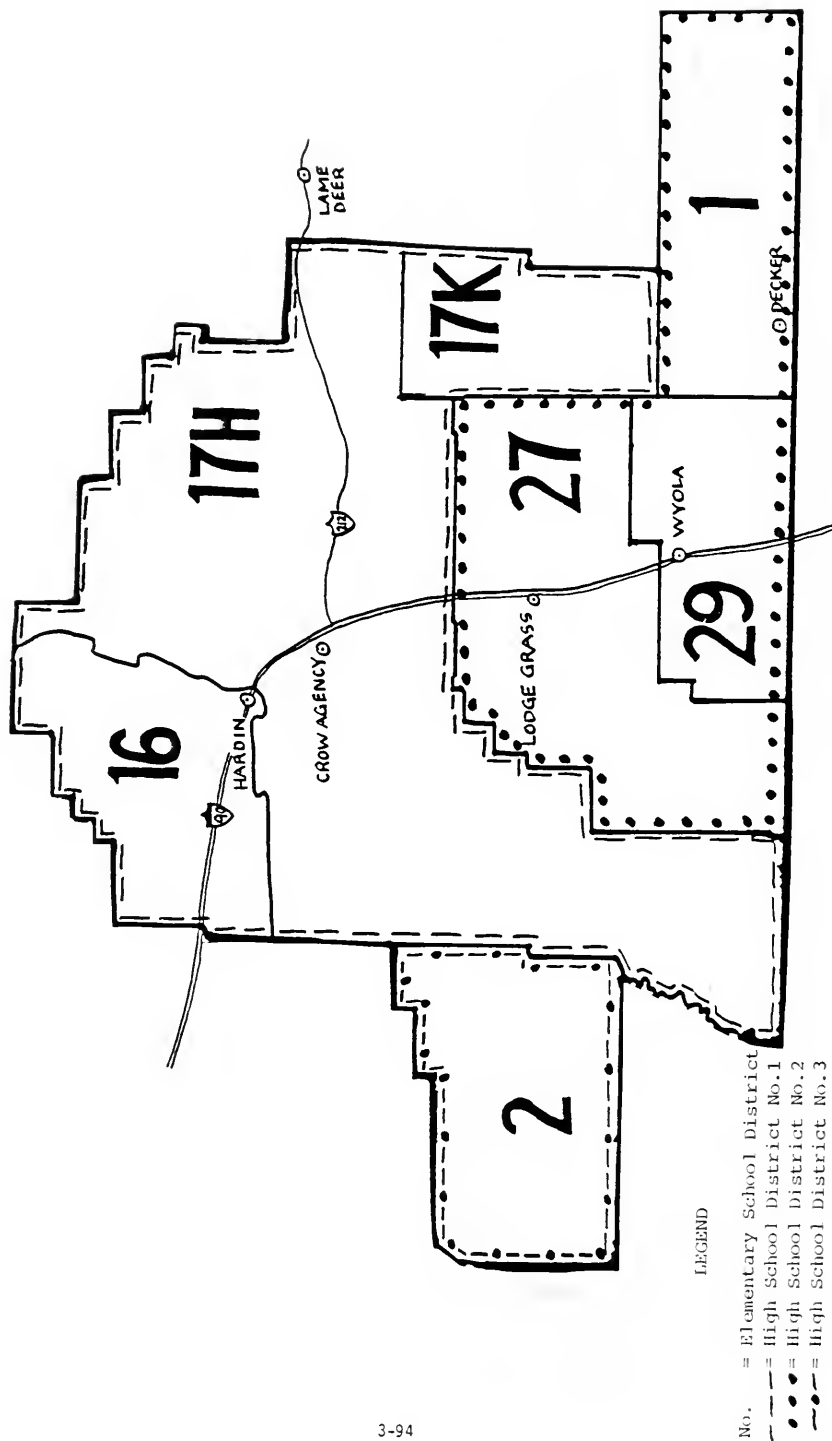
<sup>a</sup>Elementary school facilities consist of primary, intermediate, and middle schools.

<sup>b</sup>Quantitative information about school space is currently unavailable. Existing school space is assumed to be consistent with appropriate standards based upon available information pertaining to design specifications measured in units of maximum capacity for student enrollment. See Appendix D, Table D-6.

<sup>c</sup>Elementary school facilities consist of elementary and junior high schools.

FIGURE 3.3.2.6-1

Elementary and High School Districts  
Big Horn County



Source: Mountain West Research-North, Inc., 1983.

Student enrollment and personnel levels in the county schools are presented in the remainder of this section. (Table 4.4.2.6-1 presents a summary of the total student enrollment and teachers in public schools.)

In the 1982-83 school year, private elementary schools in St. Xavier and Pryor had a total enrollment of approximately 210 students and had seventeen teachers. (Turns Plenty, personal communication, November 1982; Cunningham, personal communication, November 1982.) Pretty Eagle School in St. Xavier has surplus capacity at current levels of demand, but enrollment policies of the school are intended to discourage any significant increase in student enrollment (Turns Plenty, personal communication, November 1982). St. Charles Mission School in Pryor will have adequate capacity for current needs after the completion of a classroom expansion project in 1983 (Cunningham, personal communication, November 1982).<sup>1</sup>

Little Big Horn College in Crow Agency is a community college that provides adult and vocational education programs. The college has "satellite" educational centers in the communities of Pryor, St. Xavier, Lodge Grass, and Wyola. In the 1982-83 school year, the enrollment was 95 students, and the school employed two full-time and sixteen part-time instructors. Little Big Horn College has developed curricula for adult and vocational education programs that have the capacity to serve an enrollment of 500 students. Space for both facilities and classes are inadequate for current levels of demand. (Windy Boy, personal communication, November 1982.)

High School District No. 1 (Hardin). Hardin High School provides education for students from throughout northern Big Horn County. The high school, constructed in 1978, serves grades nine through twelve and is staffed with a principal and thirty teachers. Enrollment at the school has decreased in recent years. Table 3.3.2.6-2 presents the school enrollment by grade for the school years 1980-81 and 1982-83.

The school district utilizes private contractors to operate bus routes in conjunction with Elementary School District No. 17H. The FY 1983 general fund budget is \$1.38 million, and the transportation budget for the school in FY 1983 is \$123,000 (Big Horn County High School District No. 1 1982). Personnel for the high school are considered to be adequate for current needs, and the school facility has surplus capacity for current levels of demand. (Anderson, personal communication, November 1982.)

Elementary School District No. 17H (Hardin). The Hardin elementary schools, consists of primary, intermediate, and middle school facilities, and provides education for students from throughout northern Big Horn County. The elementary schools serve students from kindergarten through grade eight and are staffed with a principal for each school and a total of fifty-six teachers. Enrollment at the schools has decreased in recent years. Table 3.3.2.6-2 presents the school enrollment by grade for the 1980-81 through 1982-83 school years. The school district utilizes private contractors to operate bus routes in conjunction with High School District No. 1. The total general fund and transportation budget expenditures for Elementary School District No. 17H for FY 1983 are: \$2.53 million for general fund, and \$153,400 for transportation. However, the incremental portion appropriated to individual schools (Hardin, Crow Agency, and Ft. Smith) are not available. (Big Horn County Elementary School District No. 17H 1982.) Personnel for the elementary schools are considered adequate at current needs, and the school facilities have surplus capacities for current levels of demand. (Anderson, personal communication, November 1982.)

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<sup>1</sup>Comprehensive discussions of the private elementary schools have been excluded from this report because the primary purpose is to focus on public services. See Section 2.3.4 for further discussion about the types of public services that are included.

TABLE 3.3.2.6-2

Public School Enrollment By Grade  
 Elementary School District No. 17H and High School District No. 1  
 Hardin, Montana

Grade	1980-81	1981-82	1982-83
K	76	90	76
1	85	81	88
2	108	79	84
3	80	100	75
4	99	83	89
5	98	97	78
6	88	92	97
7	140	135	130
8	132	124	121
Subtotal	906	881	838
9	107	117	118
10	132	89	114
11	107	113	101
12	90	92	105
Subtotal	436	411	438
TOTAL	1,342	1,292	1,276

Source: Montana Office of Public Instruction, 1980 and 1981;  
 Willard Anderson, Superintendent of Schools, Hardin High School District  
 No. 2, personal communication, November 1982.



Elementary School District No. 17H (Crow Agency). The Crow Agency Elementary School provides education for students from throughout the middle area of the Crow Indian Reservation. The school serves children in kindergarten through grade six and is staffed with one principal and twenty-two teachers. Enrollment at the school has been increasing in recent years. Table 3.3.2.6-3 presents the school enrollment by grade for the school years 1980-81 through 1982-83. The school district utilizes private contractors to operate bus routes. Refer to Elementary School District No. 17H (Hardin) for a discussion of total general fund and transportation budget expenditures. Personnel for the grade school are considered adequate for current needs, and the school facility has a surplus capacity for current levels of demand. (Anderson, personal communication, November 1982.)

Elementary School District No. 17H (Ft. Smith). The Ft. Smith Elementary School provides education for students from throughout the southwestern area of the Crow Indian Reservation. The school serves children in kindergarten through grade eight and is staffed with one principal and five teachers. Enrollment at the school has remained relatively stable at current levels in recent years. Table 3.3.2.6-4 presents the school enrollment by grade for the school years 1980-81 through 1982-83. The school district utilizes private contractors to operate bus routes in conjunction with High School District No. 1. Refer to Elementary School District No. 17H (Hardin) for total general fund and transportation budget expenditures in Elementary School District No. 17H. Personnel for the grade school are considered adequate for current needs, and the school facility has a surplus capacity at current levels of demand. (Anderson, personal communication, November 1982.) Table 3.3.2.6-1 presents additional information for public schools.

Elementary School District No. 16 (Community). The Community School provides education for students in the rural areas north of the city of Hardin. The school serves children in grades one through six and is staffed with two teachers. Enrollment at the school has increased in recent years. Table 3.3.2.6-5 presents the school enrollment by grade for the school years 1980-81 through 1982-83. The school district operates six bus routes in conjunction with High School District No. 1. The budgeted general fund expenditures for the FY 1983 school year is \$48,800, and the transportation budget is \$16,900 (Big Horn County Elementary School District No. 16 1982). Personnel for the grade school are considered adequate at current needs, and the school facility has surplus capacity for current levels of demand (Graves, personal communication, October 1982).

Elementary School District No. 17K (Big Bend). The Big Bend Elementary School provides education for students in the rural eastern areas of the Crow Indian Reservation (and for the Northern Cheyenne). The school serves children in grades one through eight and is staffed with one teacher. Enrollment at the school has remained relatively stable in recent years. Table 3.3.2.6-6 presents the school enrollment by grade for the school years 1980-81 through 1982-83. The school district operates one bus route through a private contractor. The budgeted general fund expenditures for FY 1983 are \$19,400, and the elementary district transportation budget is also \$19,400. Personnel for the grade school are considered adequate for current needs, and the school facility has surplus capacity for current levels of demand. (Verbance, personal communication, December 1982.)

High School District No. 2 (Lodge Grass). Lodge Grass High School educates students from throughout the southern area of the Crow Indian Reservation. It serves grades nine through twelve and is staffed with a principal and twenty-three teachers. Enrollment at the school has increased in recent years with the completion of a new facility in 1978. Table 3.3.2.6-7 presents the school enrollment by grade for the school years 1980-81 through 1982-83. The school district utilizes private contractors to operate six bus routes in conjunction with Elementary School District No. 27. In FY 1983, the general funds budget is \$1.174 million, and the transportation budget is \$72,600 (Big Horn County High School District No. 2

TABLE 3.3.2.6-3

Public School Enrollment By Grade  
 Elementary School District No. 17H  
 Crow Agency, Montana

Grade	1980-81	1981-82	1982-83
K	33	31	45
1	46	33	39
2	32	48	31
3	34	40	42
4	33	22	35
5	28	34	22
6	24	25	33
TOTAL	230	233	247

Source: Montana Office of Public Instruction, 1980 and 1981;  
 Willard Anderson, Superintendent of Schools, Hardin High School District  
 No. 2, personal communication, October 1982.

TABLE 3.3.2.6-4  
Public School Enrollment By Grade  
Elementary School District No. 17H  
Ft. Smith, Montana

Grade	1980-81	1981-82	1982-83
K	11	12	11
1	7	7	10
2	11	8	10
3	8	8	9
4	10	7	9
5	11	9	6
6	12	6	7
TOTAL	70	57	62

Source: Montana Office of Public Instruction, 1980 and 1981;  
Willard Anderson, Superintendent of Schools, Hardin School District No.  
2, personal communication, November 1982.

TABLE 3.3.2.6-5  
Public School Enrollment By Grade  
Elementary School District No. 16  
Community (Rural)

Grade	1980-81	1981-82	1982-83
1	4	2	5
2	2	5	2
3	3	4	7
4	2	3	5
5	4	--	5
6	3	3	2
7	--	--	--
8	--	--	--
TOTAL	18	17	26

Source: Montana Office of Public Instruction, 1980 and 1981; Eva Graves, Elementary School District No. 16, personal communication, October 1982.

TABLE 3.3.2.6-6

Public School Enrollment By Grade  
 Elementary School District No. 17K  
 Big Bend (Rural)

Grade	1980-81	1981-82	1982-83
1	--	2	--
2	2	--	1
3	2	2	--
4	1	2	2
5	1	1	2
6	1	1	1
7	1	1	1
8	1	1	1
TOTAL	9	10	8

Source: Montana Office of Public Instruction, 1980 and 1981; Anne Verbance, Elementary School District No. 17K, personal communication, October 1982.

TABLE 3.3.2.6-7

Public School Enrollment By Grade  
 Elementary School District No. 27 and High School District No. 2  
 Lodge Grass, Montana

Grade	1980-81	1981-82	1982-83
K	32	40	42
1	38	43	40
2	33	31	30
3	44	46	43
4	39	45	44
5	33	24	22
6	32	25	22
7	29	33	32
8	31	26	25
Subtotal	311	313	300
9	44	48	46
10	48	41	40
11	40	42	40
12	42	36	34
Subtotal	174	167	160
TOTAL	485	480	460

Source: Montana Office of Public Instruction, 1980 and 1981; Larry LaCounte, Superintendent of Schools, High School District No. 2, personal communication, November 1982.

1982). Personnel for the high school are considered adequate for current needs; however, the school facility is nearing capacity at current levels of demand. Planned developments include a junior high school building currently being constructed and a new elementary school to be completed in 1984. When the additional facilities are available, the high school will have surplus space. (La Counte, personal communication, November 1982).

Elementary School District No. 27 (Lodge Grass). The Lodge Grass elementary schools provide education for students from throughout the southern area of the Crow Indian Reservation. The schools serve children in kindergarten through grade eight and are staffed with one principal and thirty-three teachers. Enrollment at the schools has increased in recent years. Table 3.3.2.6-7 presents the school enrollment by grade for the school years 1980-81 through 1982-83. The school district operates six bus routes in conjunction with High School District No. 2. The total general fund and transportation budgets for Elementary School District No. 27 for FY 1983 are: general fund, \$987,000; transportation budget, \$77,900. However, the incremental portion appropriated to individual schools (Lodge Grass and Corral Creek) are not available (Big Horn County Elementary School District No. 27 1982). Personnel for the grade school are considered adequate at current needs. However, the school facilities are inadequate for current levels of demand. The addition of the new junior high school, which is currently being constructed, and a new elementary school planned for 1984 will provide an elementary school with surplus capacity. (LaCounte, personal communication, November 1982.)

Elementary School District No. 27 (Corral Creek). The Corral Creek Elementary School provides education for students in the rural, southern area of the Crow Indian Reservation. The school serves children in kindergarten through grade eight and is staffed with one teacher. Enrollment at the school has fluctuated in recent years. Table 3.3.2.6-8 presents the school enrollment by grade for the school years 1980-81 through 1982-83. The school district operates one bus route through a private contractor. Refer to Elementary School District No. 27 (Lodge Grass) for total general fund and transportation budget expenditures. Personnel for the grade school are considered adequate at current needs, and the school facility has surplus capacity for current levels of demand. (Williamson, personal communication, December 1982.)

Elementary School District No. 29 (Wyola). Wyola Elementary School provides education for students from throughout the southern area of the Crow Indian Reservation. The school serves children in kindergarten through grade eight and is staffed with one principal and six teachers. Enrollment at the school has declined slightly in recent years. Table 3.3.2.6-9 presents the school enrollment by grade for the school years 1980-81 through 1982-83. The school district utilizes private contractors to operate three bus routes. The current general fund budget is \$243,400, and the FY 1983 transportation budget is \$50,400 (Big Horn County Elementary School District No. 29 1982). Personnel for the grade school are considered adequate for current needs, and the school facility has a surplus capacity at current levels of demand. (Millsap, personal communication, November 1982.)

Elementary School District No. 1 (Squirrel Creek). The Squirrel Creek Elementary School provides education for students in the rural southeastern area of the county. The school serves children in grades one through eight and is staffed with one teacher. Enrollment at the school has remained relatively stable in recent years. Table 3.3.2.6-10 presents the school enrollment by grade for the school years 1980-81 through 1982-83. The school district operates one bus route through a private contractor. The budgeted general fund expenditures for FY 1983 are \$55,900, and the elementary district transportation budget is \$35,300 (Big Horn County Elementary School District No. 1 1982). Personnel for the grade school are considered adequate at current needs, and the school facility has surplus capacity for current levels of demand. (Helvey, personal communication, December 1982.)

TABLE 3.3.2.6-8  
Public School Enrollment By Grade  
Elementary School District No. 27  
Corral Creek (Rural)

Grade	1980-81	1981-82	1982-83
K	--	--	1
1	1	1	1
2	1	1	1
3	--	1	1
4	--	2	1
5	--	2	--
6	2	--	--
7	1	3	--
8	--	1	2
TOTAL	5	11	7

Source: Montana Office of Public Instruction, 1980 and 1981; Jerry Williamson, Elementary School District No. 27, personal communication, October 1982.



TABLE 3.3.2.6-9  
Public School Enrollment by Grade  
Elementary School District No. 29  
Wyola, Montana

Grade	1980-81	1981-82	1982-83
K	7	8	11
1	5	7	6
2	8	4	6
3	12	9	7
4	9	9	7
5	8	7	9
6	9	8	9
7	3	10	6
8	12	6	6
TOTAL	73	68	67

Source: Montana Office of Public Instruction, 1980 and 1981; Deward Millsap, Elementary School District No. 29, personal communication, October 1982.

TABLE 3.3.2.6-10

Public School Enrollment by Grade  
 Elementary School District No. 1  
 Squirrel Creek (Rural)

Grade	1980-81	1981-82	1982-83
1	1	2	1
2	1	--	1
3	1	--	--
4	2	1	--
5	--	2	2
6	1	1	2
7	1	1	1
8	--	1	1
TOTAL	7	8	8

Source: Montana Office of Public Instruction, 1980 and 1981;  
 Barbara Helvey, Elementary School District No. 1, personal  
 communication, October 1982.

High School District No. 3 (Pryor). Plenty Coups High School educates students from the entire western area of the Crow Indian Reservation. The high school serves grades nine through twelve and is staffed with a principal and eleven teachers. Enrollment at the school has increased since its founding in 1974. After the completion of a new facility in 1980, high school enrollment has been relatively stable at current levels. Table 3.3.2.6-11 presents the school enrollment by grade for the school years 1980-81 through 1982-83. The school district operates two bus routes in conjunction with Elementary School District No. 2. The general fund expenditures for the current year are budgeted at \$392,800 and the budgeted transportation expenditure is \$23,700 (Big Horn County High School District No. 3 1982). Personnel for the high school are considered to be adequate for current needs, and the school facility has a surplus capacity. (Anderson, personal communication, November 1982.)

Elementary School District No. 2 (Pryor). The Pryor Elementary School provides education for students from throughout the western area of the reservation. The school serves students from kindergarten through grade eight and is staffed with one principal and nine teachers. Enrollment at the school has remained stable at current levels in recent years. Table 3.3.2.6-11 presents the school enrollment by grade for the school years 1980-81 through 1982-83. The school district operates two bus routes in conjunction with High School District No. 3. The FY 1983 general fund budget is \$276,400, and the transportation budget for the current school year is \$23,600 (Big Horn County Elementary School District No. 2 1982). Personnel for the grade school are considered adequate at current needs, and the school facility has a surplus capacity for current levels of demand. (Lynch, personal communication, October 1982.)

### Fiscal<sup>1</sup>

In Montana, school districts have not been consolidated, with the result that district size varies greatly. Revenues for public schools can be addressed in three parts: (1) general budget (frequently referred to as the operating budget), which includes the school foundation program, (2) other budget items and (3) "title" programs. Most operational costs for school districts in Montana are met through one or combination of four sources: county taxes, district taxes, state equalization monies, and federal payments.

Funds for the general school budget can derive from the foundation program, a permissive (i.e. no vote required) district levy and a voted district levy. A maximum permissive budget level is set by state statute according to formulae established for elementary and high school districts. A major portion (80 percent) of this budget comes from the foundation program that is supported by a statutory county levy on property (25 mills for elementary and 15 mills for high schools) by the state equalization fund,<sup>2</sup> and by state-wide deficiency levies on property.<sup>3</sup> The purpose of this funding mechanism is to equalize minimum operating finances among elementary and high schools across the state. Minimum funding levels range from \$1,300 to \$1,990 per student for elementary schools and from \$1,771 to \$4,253 per student for high schools. The funding level depends upon the size of the school district, with lower per student levels established for larger districts than for smaller ones.

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<sup>1</sup>The description of school financing is adapted largely from: Montana State University, The Taxation and Revenue System of State and Local Government in Montana, Bozeman p. 22-28, 1980.

<sup>2</sup>The county revenues are supplemented by state equalization funds if the statutory millage does not yield sufficient revenues to meet the 80 percent requirements. Excess revenues are forwarded to the state equalization fund.

<sup>3</sup>A statewide property tax that can be imposed in case the amount appropriated for the state equalization fund is insufficient to bring every school to the foundation level.

TABLE 3.3.2.6-11

Public School Enrollment by Grade  
 Elementary School District No. 2 and High School District No. 3  
 Pryor, Montana

Grade	1980-81	1981-82	1982-83
K	14	19	21
1	8	5	5
2	7	8	3
3	7	5	6
4	7	5	6
5	9	7	5
6	6	7	5
7	6	5	7
8	4	6	6
Subtotal	68	67	64
9	24	7	15
10	25	22	10
11	11	22	17
12	16	12	23
Subtotal	76	63	65
TOTAL	144	130	129

Source: Montana Office of Public Instruction, 1980 and 1981; Robert Lynch, Superintendent of Schools, Pryor High School District No. 3, personal communication, October 1982.

To provide the additional 20 percent of the maximum permissive level, districts may impose a permissive levy on the taxable value of property in the district. This levy may not exceed 9 mills for elementary and 6 mills for high school district, and it cannot exceed the millage necessary to complete the maximum permissive budget level. (Where the levy is insufficient to fulfill the budget level, additional state transfer may be made).

In addition, each school district may vote a district levy to supplement the maximum permissive budget in order to complete the total general budget.

Transportation, special education, capital development, and other functions are financed through varying combinations of state, county, district, and federal sources.

School districts that are directly impacted by federal projects and/or personnel qualify for federal PL 874 funds. The Crow and Cheyenne reservations are considered federal impact areas; therefore, the public school districts that receive Indian students may apply for PL 874 money. This money goes directly to the district and does not necessarily affect the level of county and state funding they receive from the foundation program. In the following discussion, the federal funds are categorized as federal or cash reappropriated sources of revenue.

This section presents the expenditure and revenue history for the public school districts in Big Horn County. The history consists of the actual FY 1981 and the approved FY 1982 and 1983 expenditures and revenues for each district. A map showing the school district boundaries is included in Figure 3.3.2.6-1.

High School District No. 1 (Hardin). A discussion of revenue history, expenditure history, and debt service is included in this section.

- 1) Revenue history. Table 3.3.2.6-12 presents the district's revenues by major source for the period FY 1981 to 1983. Over this period, total district revenues increased 27.8 percent, reaching \$2.22 million in the FY 1983 budget. Between 1981 and 1982, general fund revenues rose 11.2 percent to \$1.38 million. Revenue from the foundation program accounted for the largest share of the general fund revenue. In 1981, it accounted for 44.2 percent of the general fund total and in 1983 accounted for 47.9 percent of the budgeted general fund total. Federal funds and cash reappropriated accounted for 38.2 percent of the general fund revenue in 1981 compared to 41.9 percent in the 1983 budget.
- 2) Expenditure history. The historical expenditures for the Hardin High School are presented in Table 3.3.2.6-13. Total spending increased from \$696,500 in 1981 to \$1.385 million in the 1983 budget. Over this period, general fund spending increased 80.0 percent to \$633,100 in the 1983 budget, while the instruction portion of the general fund budget increased 44.2 percent to \$76,300.
- 3) Debt service. The 1983 budget allocated \$208,700 for debt service and reserves for building activities. The district has an outstanding bond debt of \$650,000. Since the district has a taxable valuation of \$28.82 million, the bonding capacity of the district is \$13.42 million.

Elementary District No. 17H (Hardin). A discussion of revenues, expenditures, and debt service is included in this section.

- 1) Revenue history. Table 3.3.2.6-14 presents the revenues by major source for Elementary District No. 17H for the period FY 1981 to 1983. Total district revenue increased from \$3.5 million in 1981 to \$3.7 million in the 1983 budget. General fund revenues decreased by 11.4 percent over this period. Revenue from the foundation program accounted for 40.9 percent of total general fund revenue in 1980 and 57.7 percent of the general fund budget in 1983.
- 2) Expenditure history. Table 3.3.2.6-15 presents the expenditures by major function for the district. Total district spending increased from \$2.13 million in 1981 to \$3.53 million in the 1983

TABLE 3.3.2.6-12

Revenue History  
High School District No. 1 (Hardin)  
FY 1981-83  
(\$000)

Source	1981 Actual Revenue	1982 Estimated Revenue	1983 Estimated Revenue
<u>General Fund</u>			
District Levy	97.6	82.4	139.8
Interest	111.5	0	0
Miscellaneous	.9	0	0
County Foundation	548.1	589.4	661.6
State Equalization	0	0	0
Federal Revenues	474.3	0	0
Cash Reappropriated	0	543.0	579.0
Other	0	0	0
Total General Fund	1,241.3	1,214.8	1,380.5
<u>Transportation Fund</u>			
District	20.8	19.6	10.6
County	64.8	63.3	75.0
State	32.4	37.5	37.5
Federal	0	0	0
Total Transportation	118.0	120.3	123.0
<u>Tuition Fund Total</u>	0	0	0
<u>Retirement Fund Total</u>	105.4	123.8	141.3
<u>Debt Service and Building Reserve Total</u>	115.4	140.0	208.7
<u>Insurance Fund Total</u>	146.1	210.0	334.1
<u>Adult Education Total</u>	8.4	27.7	29.8
 TOTAL DISTRICT REVENUES	 1,734.7	 1,836.6	 2,217.5

Source: Mountain West Research-North, Inc. 1982; School District Budgets 1981, 1982, and 1983.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-13  
Expenditure History  
High School District No. 1 (Hardin)  
FY 1981-83  
(\$000)

Source	Actual 1981	Approved 1982	Approved 1983
<u>General Fund</u>			
Administration	34.1	50.5	66.4
Instruction	592.8	752.7	823.6
Building Operation	127.7	190.0	223.8
Other Expenses	122.4	171.7	191.6
Capital Outlay	14.6	50.0	75.0
Total General Fund	891.6	1214.8	1380.5
<u>Other Funds</u>			
Transportation Fund	96.3	120.3	123.0
Bus Reserve Fund	0	0	13.8
Tuition Cost	0	0	0
Retirement Fund	92.2	123.8	141.5
Debt Service Fund	0	0	108.7
Building Reserve Fund	0	0	100.0
Other Funds	156.3	237.7	266.0
Total Other Funds	344.8	481.8	752.8
 TOTAL EXPENDITURES	 1236.4	 1696.8	 2133.3

Source: Mountain West Research-North, Inc., 1982, from school district fiscal statements.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-14

Revenue History  
Elementary District No. 17H (Hardin)  
FY 1981-83  
(\$000)

Source	1981 Actual Revenue	1982 Estimated Revenue	1983 Estimated Revenue
<u>General Fund</u>			
District Levy	106.7	0	0
Interest	252.3	0	0
Miscellaneous	3.2	0	0
County Foundation	1,168.0	1,314.2	1,460.8
State Equalization	38.3	67.1	111.5
Federal Revenues	1,283.7	0	0
Cash Reappropriated	0	903.7	960.6
Other	51.6	7.7	0
Total General Fund	2,857.7	2,292.7	2,532.8
<u>Transportation Fund</u>			
District	90.0	67.2	57.8
County	35.4	44.2	47.8
State	35.4	44.2	47.8
Federal	0	0	0
Total Transportation	160.8	155.6	153.4
<u>Tuition Fund Total</u>	0.6	1.2	0.1
<u>Retirement Fund Total</u>	215.8	252.2	301.7
<u>Debt Service and Building Reserve Total</u>	140.2	131.9	277.8
<u>Insurance Fund Total</u>	156.8	217.0	440.6
<u>Adult Education Total</u>	0	0	0
 TOTAL DISTRICT REVENUES	 3,531.9	 3,050.5	 3,706.5

Source: Mountain West Research-North, Inc. 1982; School District Budgets 1981, 1982, and 1983.

Note: Totals may not sum due to rounding.



TABLE 3.3.2.6-15  
Expenditure History  
Elementary School District No. 17H  
FY 1981-83  
(\$000)

Source	Actual 1981	Approved 1982	Approved 1983
<u>General Fund</u>			
Administration	63.0	94.3	119.5
Instruction	1,380.0	1,654.5	1,850.3
Building Operation	204.4	295.7	335.0
Other Expenses	98.2	190.9	166.0
Capital Outlay	17.5	59.3	62.0
Total General Fund	1,763.1	2,292.9	2,532.8
<u>Other Funds</u>			
Transportation Fund	145.9	156.0	153.4
Bus Reserve Fund	0	0	27.8
Tuition Cost	0.8	1.2	0
Retirement Fund	206.1	252.2	301.7
Debt Service Fund	0	0	125.6
Building Reserve Fund	0	0	152.2
Other Funds	17.0	217.0	235.9
Total Other Funds	369.8	626.4	996.6
 TOTAL EXPENDITURES	 2,133.6	 2,919.3	 3,529.4

Source: Mountain West Research-North, Inc., 1982, from school district fiscal statements.

Note: Totals may not sum due to rounding.

budget, an increase of 65.4 percent. General fund spending increased 43.7 percent from \$1.76 million in 1981 to \$2.53 million in the 1983 budget. The instruction expenditures increased from \$1.38 million in 1981 to \$1.85 million in the 1983 budget.

- 3) Debt service. The district budgeted \$277,800 for debt service and building reserve in the 1983 budget. The district has outstanding bonds worth \$750,000. The taxable valuation of the district is \$28.19 million in 1983, which converts to a bonding capacity of \$12.69 million.

Elementary District No. 16 (Community). A discussion of revenues, expenditure, and debt service is included in this section.

- 1) Revenue history. Table 3.3.2.6-16 presents the historical revenues, by major source, for the school district for the period FY 1981-83. Total district revenue increased 42.4 percent from \$59,000 in 1981 to \$84,000 in the 1983 budget. The general fund revenue increased by 42.7 percent to \$49,000 in the 1983 budget. The county foundation program and the district levy were the only general fund revenue sources. The county foundation program contributed 70.2 percent of the total general fund revenue in 1981 and 65.4 percent in the 1983 budget.
- 2) Expenditure history. District spending, by major function, for the period FY 1981 to 1983 are presented in Table 3.3.2.6-17. Total spending increased from \$60,400 in 1981 to \$77,000 in the 1983 budget. General fund spending increased 25.8 percent to \$49,000 in the 1983 budget while the instruction budget increased 27.2 percent to \$34,000.
- 3) Debt service. The district did not budget debt service expenditures in 1983. The current value of outstanding bonds for the district is \$7,500. The taxable valuation of the district is \$1.29 million; therefore, the bonding capacity of the district is \$578,000.

Elementary District No. 17K (Big Bend). A discussion of revenues, expenditures, and debt service is included in this section.

- 1) Revenue history. The historical revenues by major source for the district are presented in Table 3.3.2.6-18. The total district revenue increased 60.1 percent from \$14,000 in the 1981 to \$23,000 in the 1983 budget. The general fund revenue increased 67.2 percent over the period. The county foundation program provided 94.8 percent of the total general fund revenue in 1981 and 79.9 percent in the 1983 budget.
- 2) Expenditure history. Table 3.3.2.6-19 presents the district's expenditures by major function for the period from FY 1981 to 1983. Total spending increased from \$16,000 in 1981 to \$23,000 in the 1983 budget, an increase of 41.1 percent. The general fund spending increased 41.3 percent to \$20,000 in the 1983 budget. Instruction expenditures increased from \$10,000 in the 1981 to \$13,000 in the 1983 budget.
- 3) Debt service. The district made no expenditures for debt service in the 1983 budget and has no outstanding bond issues. The taxable valuation of the district is \$337,000, yielding a bonding capacity of \$152,000.

High School District No. 2 (Lodge Grass). A discussion of revenues, expenditures, and debt service is included in this section.

- 1) Revenue history. Table 3.3.2.6-20 presents the district revenue by major source for the period FY 1981 to 1983. The total district revenue decreased slightly from \$1.645 million in 1981 to \$1.639 million in the 1983 budget. The general fund revenue increased 25.8 percent to \$1.17 million in the 1983 budget. Federal revenue and cash reappropriated sources were major contributors to the general fund revenue. In 1981 these sources comprised 41.9 percent of the general fund revenue and in the 1983 budget they comprised 51.7 percent of the total general fund revenue.
- 2) Expenditure history. The historical expenditures for the Lodge Grass High School district are presented in Table 3.3.2.6-21. Total spending increased from \$681,000 in 1981 to \$1.649 million

TABLE 3.3.2.6-16

Revenue History  
 Elementary District No. 16 (Community)  
 FY 1981-83  
 (\$000)

Source	1981 Actual Revenue	1982 Estimated Revenue	1983 Estimated Revenue
<u>General Fund</u>			
District Levy	10.2	15.9	17.0
Interest	0	0	0
Miscellaneous	0	0	0
County Foundation	24.0	27.7	31.9
State Equalization	0	0	0
Federal Revenues	0	0	0
Cash Reappropriated	0	0	0
Other	0	0	0
Total General Fund	34.2	43.6	48.8
<u>Transportation Fund</u>			
District	6.8	7.0	10.4
County	2.6	2.9	3.3
State	1.2	2.9	3.3
Federal	0	0	0
Total Transportation	10.7	12.8	16.9
<u>Tuition Fund Total</u>	5.7	9.5	8.2
<u>Retirement Fund Total</u>	3.5	3.9	4.5
<u>Debt Service and Building Reserve Total</u>	3.0	4.6	4.0
<u>Insurance Fund Total</u>	2.0	1.4	1.6
<u>Adult Education Total</u>	0	0	0
 TOTAL DISTRICT REVENUES	 59.0	 75.9	 84.0

Source: Mountain West Research-North, Inc. 1982; School District Budgets 1981, 1982, and 1983.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-17  
Expenditure History  
Elementary School District No. 16  
FY 1981-83  
(\$000)

Source	Actual 1981	Approved 1982	Approved 1983
<u>General Fund</u>			
Administration	3.2	3.4	4.2
Instruction	26.5	30.4	33.7
Building Operation	4.3	5.3	6.3
Other Expenses	0	0	0
Capital Outlay	4.8	5.5	4.6
Total General Fund	38.8	44.6	48.8
<u>Other Funds</u>			
Transportation Fund	8.9	10.2	15.4
Bus Reserve Fund	0	0	0
Tuition Cost	7.1	8.8	6.7
Retirement Fund	3.0	3.9	4.5
Debt Service Fund	0	0	0
Building Reserve Fund	0	0	0
Other Funds	2.6	1.2	1.6
Total Other Funds	21.6	24.1	28.2
 TOTAL EXPENDITURES	 60.4	 68.7	 77.0

Source: Mountain West Research-North, Inc., 1982, from school district fiscal statements.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-18

Revenue History  
Elementary District No. 17K (Big Bend)  
FY 1981-83  
(\$000)

Source	1981 Actual Revenue	1982 Estimated Revenue	1983 Estimated Revenue
<u>General Fund</u>			
District Levy	0.6	3.1	3.0
Interest	0	0	0
Miscellaneous	0	0	0
County Foundation	11.0	13.0	15.5
State Equalization	0	0.2	0.9
Federal Revenues	0	0	0
Cash Reappropriated	0	0	0
Other	0	0	0
Total General Fund	11.6	16.2	19.4
<u>Transportation Fund</u>			
District	0.1	0.7	0.6
County	0.5	0.7	0.6
State	0.5	0.7	0.6
Federal			
Total Transportation	1.1	2.1	1.8
<u>Tuition Fund Total</u>	0	0	0
<u>Retirement Fund Total</u>	0.7	0.8	0.9
<u>Debt Service and Building Reserve Total</u>	0	0	0
<u>Insurance Fund Total</u>	0.8	0.8	0.8
<u>Adult Education Total</u>	0	0	0
 TOTAL DISTRICT REVENUES	 14.3	 20.0	 22.9

Source: Mountain West Research-North, Inc. 1982; School District Budgets 1981, 1982, and 1983.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-19  
Expenditure History  
Elementary School District No. 17K (Big Bend)  
FY 1981-83  
(\$000)

Source	Actual 1981	Approved 1982	Approved 1983
<u>General Fund</u>			
Administration	0.4	0.5	0.6
Instruction	9.7	11.2	13.2
Building Operation	3.7	4.7	5.7
Other Expenses	0	0	0
Capital Outlay	0	0	0
Total General Fund	13.8	16.4	19.5
<u>Other Funds</u>			
Transportation Fund	1.5	2.1	1.8
Bus Reserve Fund	0	0	0
Tuition Cost	0	0	0
Retirement Fund	0.7	0.8	0.9
Debt Service Fund	0	0	0
Building Reserve Fund	0	0	0
Other Funds	0.3	0.8	0.8
Total Other Funds	2.5	3.7	3.5
 TOTAL EXPENDITURES	 16.3	 20.1	 23.0

Source: Mountain West Research-North, Inc., 1982, from school district fiscal statements.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-20

Revenue History  
High School District No. 2 (Lodge Grass)  
FY 1981-83  
(\$000)

Source	1981 Actual Revenue	1982 Estimated Revenue	1983 Estimated Revenue
<u>General Fund</u>			
District Levy	249.3	261.3	248.8
Interest	67.2	0	0
Miscellaneous	5.0	0	0
County Foundation	221.3	291.3	318.9
State Equalization	0	0	0
Federal Revenues	340.8	0	0
Cash Reappropriated	0	430.6	606.8
Other	0	0	0
Total General Fund	933.6	983.2	1,174.2
<u>Transportation Fund</u>			
District	32.6	33.7	43.1
County	15.7	23.8	26.0
State	7.4	11.9	13.0
Federal	0	0	0
Total Transportation	55.8	69.5	82.2
<u>Tuition Fund Total</u>	0	0	0
<u>Retirement Fund Total</u>	51.0	71.0	79.3
<u>Debt Service and Building Reserve Total</u>	302.7	464.3	282.8
<u>Insurance Fund Total</u>	19.1	20.2	20.0
<u>Adult Education Total</u>	1.0	1.0	1.0
<b>TOTAL DISTRICT REVENUES</b>	<b>1,645.0</b>	<b>1,609.1</b>	<b>1,639.4</b>

Source: Mountain West Research-North, Inc. 1982; School District Budgets 1981, 1982, and 1983.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-21

Expenditure History  
High School District No. 2 (Lodge Grass)  
FY 1981-83  
(\$000)

Source	Actual 1981	Approved 1982	Approved 1983
<u>General Fund</u>			
Administration	64.6	79.5	82.8
Instruction	312.0	473.1	547.7
Building Operation	131.5	226.4	290.2
Other Expenses	45.8	69.6	109.6
Capital Outlay	11.3	134.7	144.0
Total General Fund	565.2	983.3	1,174.3
<u>Other Funds</u>			
Transportation Fund	58.7	66.9	92.6
Bus Reserve Fund	0	0	0
Tuition Cost	0	0	0
Retirement Fund	42.1	71.0	79.3
Debt Service Fund	0	0	282.8
Building Reserve Fund	0	0	0
Other Funds	15.0	20.0	20.0
Total Other Funds	115.8	157.9	474.7
 TOTAL EXPENDITURES	 681.0	 1,141.2	 1,649.0

Source: Mountain West Research-North, Inc., 1982, from school district fiscal statements.

Note: Totals may not sum due to rounding.



in the 1983 budget, an increase of 142.0 percent. The general fund expenditures increased 107.8 percent to \$1.174 million in the 1983 budget. Expenditures on instruction rose from \$312,000 in 1981 to \$548,000 in the 1983 budget.

- 3) Debt service. The district budgeted \$283,000 for debt service in the 1983 school year. The district currently has \$2.27 million in outstanding bonds. The district's taxable valuation is \$93.28 million, giving it a bonding capacity of \$41.98 million.

Elementary District No. 27 (Lodge Grass). A discussion of revenues, expenditures, and debt service is included in this section.

- 1) Revenue history. The revenue history of the district from the period FY 1981 to 1983 is presented in Table 3.3.2.6-22. Total district revenues increased from \$974,000 in 1981 to \$1.207 million in the 1983 budget, an increase of 23.9 percent. The general fund revenue increased 20 percent to \$987,000 in the 1983 budget. Federal revenue and cash reappropriated sources constituted a large portion of the districts general fund revenue. In 1981 these sources provided 50.1 percent of the general fund revenue.
- 2) Expenditure history. Table 3.3.2.6-23 presents the district expenditures by major function. Total expenditures increased 78.8 percent from \$660,000 in 1981 to \$1.180 million in the 1983 budget. The general fund spending increased 79.4 percent from \$550,000 to \$987,000. Expenditures on instruction increased from \$376.2 thousand in 1981 to \$670,000 in the 1983 budget.
- 3) Debt service. The district did not budget expenditures for debt service in the 1983 budget. The district does have \$225,000 worth of outstanding bonds. The taxable valuation of the district is \$2.11 million, which means that the bonding capacity of the district is \$950,000.

Elementary District No. 29 (Wyola). A discussion of revenues, expenditures, and debt service is included in this section.

- 1) Revenue history. Table 3.3.2.6-24 presents the revenue by major source for the Wyola Elementary School District. Total revenue decreased from \$353,000 in 1981 to \$336,000 in 1983, a reduction of 4.8 percent. General fund revenues decreased a total of 11.4 percent to \$243,000 in 1983. Federal revenues and cash reappropriated constituted a large share of the general fund revenues. These sources accounted for 57.2 percent of the general fund budget in 1981 and 53.4 percent in 1983.
- 2) Expenditure history. Expenditures by major function for the Wyola School District are presented in Table 3.3.2.6-25. Total spending increased by 9.3 percent from FY 1981 to 1983. General fund spending increased 2.8 percent to \$243,000 in 1983. The instruction spending increased from \$119,000 in 1981 to \$139,000 in 1983, an increase of 17 percent. Administrative expenditures decreased 27 percent over the period.
- 3) Debt service. The district budgeted \$8,000 for building reserve spending in 1983. No other debt service expenditures are budgeted. The taxable valuation of the district is \$1.11 million in 1983; therefore, the bonding capacity of the district is \$499,000.

Elementary District No. 1 (Squirrel Creek). A discussion of revenues, expenditures, and debt service is included in this section.

- 1) Revenue history. Revenues by major source for the district for the period FY 1981 to 1983 are presented in Table 3.3.2.6-26. Total revenues increased from \$80,000 in 1981 to \$105,000 in 1983, a rise of 31.2 percent. The cash reappropriated funding became a major source during the period. It was nonexistent in 1981 but accounted for 53 percent of the general fund revenue in 1983.
- 2) Expenditure history. Table 3.3.2.6-27 shows the historical expenditures for the Squirrel Creek school. Total expenditures increased from \$61,000 in 1981 to \$105,000 in 1983, an increase of

TABLE 3.3.2.6-22

Revenue History  
 Elementary School District No. 27 (Lodge Grass)  
 FY 1981-83  
 (\$000)

Source	1981 Actual Revenue	1982 Estimated Revenue	1983 Estimated Revenue
<u>General Fund</u>			
District Levy	0.2	0	0
Interest	83.2	0	0
Miscellaneous	3.6	0	0
County Foundation	263.2	365.3	409.2
State Equalization	72.5	72.7	83.3
Federal Revenues	398.7	0	0
Cash Reappropriated	0	290.0	494.1
Other	0	0	0
Total General Fund	822.0	728.0	986.6
<u>Transportation Fund</u>			
District	22.9	42.5	46.9
County	11.7	15.6	15.5
State	11.7	15.6	15.5
Federal	0	0	0
Total Transportation	46.2	73.6	77.9
<u>Tuition Fund Total</u>	1.0	0.8	0.8
<u>Retirement Fund Total</u>	61.2	69.0	95.0
<u>Debt Service and Building Reserve Total</u>	27.9	35.6	26.9
<u>Insurance Fund Total</u>	15.8	19.0	20.0
<u>Adult Education Total</u>	0	0	0
 TOTAL DISTRICT REVENUES	 974.1	 926.0	 1,207.2

Source: Mountain West Research-North, Inc. 1982; School District Budgets 1981, 1982, and 1983.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-23

Expenditure History  
 Elementary School District No. 27 (Lodge Grass)  
 FY 1981-83  
 (\$000)

Source	Actual 1981	Approved 1982	Approved 1983
<u>General Fund</u>			
Administration	42.3	55.7	70.8
Instruction	376.2	466.7	670.0
Building Operation	109.8	154.4	162.7
Other Expenses	20.3	45.7	75.1
Capital Outlay	1.2	5.5	8.0
Total General Fund	549.6	728.0	986.6
<u>Other Funds</u>			
Transportation Fund	44.3	73.6	77.9
Bus Reserve Fund	0	0	0
Tuition Cost	0	0	0
Retirement Fund	50.2	69.0	95.0
Debt Service Fund	0	0	0
Building Reserve Fund	0	0	0
Other Funds	15.2	19.0	20.0
Total Other Funds	109.7	161.6	192.9
 TOTAL EXPENDITURES	 659.5	 889.6	 1,179.5

Source: Mountain West Research-North, Inc., 1982, from school district fiscal statements.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-24

Revenue History  
 Elementary School District No. 29 (Wyola)  
 FY 1981-83  
 (\$000)

Source	1981 Actual Revenue	1982 Estimated Revenue	1983 Estimated Revenue
<u>General Fund</u>			
District Levy	19.5	43.6	0
Interest	5.0	0	0
Miscellaneous	2.2	0	0
County Foundation	81.6	94.5	98.7
State Equalization	9.2	13.4	14.7
Federal Revenues	157.3	0	0
Cash Reappropriated	0	50.7	130.0
Other	0	0	0
Total General Fund	274.8	202.3	243.4
<u>Transportation Fund</u>			
District	21.0	39.1	33.1
County	7.9	8.7	8.7
State	7.9	8.7	8.7
Federal	0	0	0
Total Transportation	36.7	56.6	56.4
<u>Tuition Fund Total</u>	6.2	6.5	5.0
<u>Retirement Fund Total</u>	20.4	20.8	22.3
<u>Debt Service and Building Reserve Total</u>	8.8	8.8	8.6
<u>Insurance Fund Total</u>	5.4	10.5	5.3
<u>Adult Education Total</u>	0.6	1.0	1.1
 TOTAL DISTRICT REVENUES	 352.9	 306.4	 336.0

Source: Mountain West Research-North, Inc. 1982; School District Budgets 1981, 1982, and 1983.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-25  
Expenditure History  
Elementary School District No. 29 (Wyola)  
FY 1981-83  
(\$000)

Source	Actual 1981	Approved 1982	Approved 1983
<u>General Fund</u>			
Administration	25.9	22.1	18.9
Instruction	118.8	121.9	139.4
Building Operation	66.1	41.0	46.3
Other Expenses	26.0	17.3	38.8
Capital Outlay	0		
Total General Fund	236.8	202.3	243.4
<u>Other Funds</u>			
Transportation Fund	38.4	55.5	50.4
Bus Reserve Fund			
Tuition Cost	9.2	6.5	3.9
Retirement Fund	18.2	20.8	22.5
Debt Service Fund			
Building Reserve Fund			7.6
Other Funds	7.1	11.0	6.4
Total Other Funds	68.9	93.8	90.8
 TOTAL EXPENDITURES	 305.7	 296.1	 334.2

Source: Mountain West Research-North, Inc., 1982, from school district fiscal statements.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-26

Revenue History  
 Elementary School District No. 1 (Squirrel Creek)  
 FY 1981-83  
 (\$000)

Source	1981 Actual Revenue	1982 Estimated Revenue	1983 Estimated Revenue
<u>General Fund</u>			
District Levy	34.4	8.7	12.0
Interest	0	0	0
Miscellaneous	0	0	0
County Foundation	10.6	12.5	14.3
State Equalization	0	0	0
Federal Revenues	0	0	0
Cash Reappropriated	0	32.5	29.6
Other	0	0	0
Total General Fund	44.9	53.6	55.9
<u>Transportation Fund</u>			
District	18.6	25.8	26.7
County	4.0	4.7	5.4
State	4.0	4.7	5.4
Federal	0	0	0
Total Transportation	26.7	35.1	37.4
<u>Tuition Fund Total</u>	0	0.1	0.1
<u>Retirement Fund Total</u>	5.1	6.5	
<u>Debt Service and Building Reserve Total</u>	0	0	0
<u>Insurance Fund Total</u>	3.0	3.8	3.8
<u>Adult Education Total</u>	0	0	0
 TOTAL DISTRICT REVENUES	 79.8	 99.0	 104.7

Source: Mountain West Research-North, Inc. 1982; School District Budgets 1981, 1982, and 1983.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-27

Expenditure History  
 Elementary School District No. 1 (Squirrel Creek)  
 FY 1981-83  
 (\$000)

Source	Actual 1981	Approved 1982	Approved 1983
<u>General Fund</u>			
Administration	2.8	4.7	5.6
Instruction	22.7	34.3	35.6
Building Operation	1.6	10.1	10.3
Other Expenses	0.6	1.0	1.0
Capital Outlay	2.7	3.5	3.5
Total General Fund	30.4	53.6	56.0
<u>Other Funds</u>			
Transportation Fund	25.5	35.1	37.4
Bus Reserve Fund	0	0	0
Tuition Cost	0	0	0
Retirement Fund	3.5	6.5	7.5
Debt Service Fund	0	0	0
Building Reserve Fund	0	0	0
Other Funds	2.0	3.8	3.8
Total Other Funds	31.0	45.4	48.7
TOTAL EXPENDITURES	61.4	99.0	104.7

Source: Mountain West Research-North, Inc., 1982, from school district fiscal statements.

Note: Totals may not sum due to rounding.

70.5 percent. General fund spending increased 84.2 percent to \$56,000 in 1983. The instruction spending increased 56.8 percent from \$23,000 in 1981 to \$36,000 in 1983.

- 3) Debt service. The district did not budget for debt service expenditures in 1983. There are no outstanding debts for the district at this time. The district has a taxable valuation of \$90.06 million; therefore it has a bonding capacity of \$40.53 million.

High School District No. 3 (Pryor). A discussion of revenues, expenditures, and debt service is included in this section.

- 1) Revenue history. Table 3.3.2.6-28 presents the district revenues by major source for the period FY 1981 to 1983. Total district revenues increased from \$332,000 in 1980 to \$472,000 in the 1983 budget, an increase of 41.7 percent. General fund revenue increased 37.3 percent to \$393,000 in the 1983 budget. Federal revenue and cash reappropriated comprised 40.7 percent of the general fund revenue in 1981 and 46.5 percent in the 1983 budget.
- 2) Expenditure history. Table 3.3.2.6-29 presents the expenditure history for the Pryor High School. Total expenditures increased from \$370,000 in 1981 to \$472,000 in the 1983 budget, an increase of 27.3 percent. General fund spending rose 23 percent to \$393,000 in the 1983 budget. Instruction spending increased from \$179,000 in 1981 to \$209,000 in the 1983 budget, a rise of 17 percent.
- 3) Debt service. The district does not have any outstanding debt at this time. The taxable valuation of the district is \$701,000, which means that the bonding capacity is \$316,000.

Elementary District No. 2 (Pryor). A discussion of revenues, expenditures, and debt service is included in this section.

- 1) Revenue history. Revenues by major source for the Pryor elementary district are presented in Table 3.3.2.6-30. Total revenues increased from \$236,000 in 1981 to \$347,000 in 1983, an increase of 46.6 percent. The district received a large portion of its fund from federal and cash reappropriated sources. These funds accounted for 49.4 percent of the total general fund budget in 1981 and 53.0 percent of the general fund budget in 1983.
- 2) Expenditure history. Table 3.3.2.6-31 presents the expenditures by major function for the Pryor elementary school during the FY 1981-83 period. Between 1981 and 1983, total expenditures increased from \$288,000 to \$347,000, an increase of 20.7 percent. The general fund spending increased 17.4 percent to \$276,000. Instruction spending increased 32.6 percent.
- 3) Debt service. The district did not make expenditures for debt service during the period. The district has a taxable valuation of \$701,000, therefore, it has a bonding capacity of \$316,000.

### 3.3.3 Hardin

#### 3.3.3.1 General Description

This section describes the existing environment in Hardin, which is defined by the city's municipal boundaries, and the Hardin area, which consists of the portion of Big Horn County located north of the Crow and Northern Cheyenne Indian reservations<sup>1</sup>. The section is divided into five parts. Section 3.3.3.2 describes the area's population and economy. Section 3.3.3.3 describes social life and cultural diversity in Hardin and the Hardin area. Current housing conditions are portrayed in Section 3.3.3.4. Facilities/services and fiscal conditions are described in sections 3.3.3.5 and 3.3.3.6, respectively.

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<sup>1</sup>In some tables, this area is designated as "Hardin North."



TABLE 3.3.2.6-28

Revenue History  
High School District No. 3 (Pryor)  
FY 1981-83  
(\$000)

Source	1981 Actual Revenue	1982 Estimated Revenue	1983 Estimated Revenue
<u>General Fund</u>			
District Levy	0	0	0
Interest	14.2	20.0	0
Miscellaneous	0.2	0	0
County Foundation	124.1	164.0	171.5
State Equalization	26.2	36.9	38.7
Federal Revenues	116.3	67.3	7.1
Lash Reappropriated	0	62.8	175.6
Other	0	0	0
Total General Fund	286.0	351.0	392.8
<u>Transportation Fund</u>			
District	6.6	13.3	16.5
County	4.9	5.6	4.8
State	2.5	2.8	2.4
Federal	0	10.0	0
Total Transportation	13.9	31.8	23.7
<u>Tuition Fund Total</u>	0	0	0
<u>Retirement Fund Total</u>	25.3	28.5	40.0
<u>Debt Service and Building Reserve Total</u>	0	0	0
<u>Insurance Fund Total</u>	7.2	12.5	15.0
<u>Adult Education Total</u>	0	0	0
 TOTAL DISTRICT REVENUES	 332.4	 423.8	 471.5

Source: Mountain West Research-North, Inc. 1982; School District Budgets 1981, 1982, and 1983.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-29  
Expenditure History  
High School District No. 3 (Pryor)  
FY 1981-83  
(\$000)

Source	Actual 1981	Approved 1982	Approved 1983
<u>General Fund</u>			
Administration	30.6	34.8	35.6
Instruction	178.8	195.5	209.2
Building Operation	40.4	70.5	77.0
Other Expenses	38.1	38.2	58.0
Capital Outlay	31.4	82.0	13.0
Total General Fund	319.3	351.0	392.8
<u>Other Funds</u>			
Transportation Fund	20.6	31.8	23.7
Bus Reserve Fund	0	0	0
Tuition Cost	0	0	0
Retirement Fund	23.3	28.5	40.0
Debt Service Fund	0	0	0
Building Reserve Fund	0	0	0
Other Funds	7.2	12.5	15.0
Total Other Funds	51.1	72.8	78.7
 TOTAL EXPENDITURES	 370.4	 423.8	 471.5

Source: Mountain West Research-North, Inc., 1982, from school district fiscal statements.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-30

Revenue History  
Elementary School District No. 2 (Pryor)  
FY 1981-83  
(\$000)

Source	1981 Actual Revenue	1982 Estimated Revenue	1983 Estimated Revenue
<u>General Fund</u>			
District Levy	0.2	0	0
Interest	21.5	20.0	0
Miscellaneous	0.7	0	0
County Foundation	65.4	93.1	108.9
State Equalization	0	0	204
Federal Revenues	95.2	32.3	68.3
Cash Reappropriated	0	102.9	78.3
Other	0	0	0
Total General Fund	192.9	265.9	276.4
<u>Transportation Fund</u>			
District	11.7	13.2	16.0
County	2.5	2.8	3.8
State	2.5	2.8	3.8
Federal	0	10.0	0
Total Transportation	16.7	28.8	23.7
<u>Tuition Fund Total</u>	0	0	0
<u>Retirement Fund Total</u>	19.0	23.3	32.0
<u>Debt Service and Building Reserve Total</u>	0	0	0
<u>Insurance Fund Total</u>	8.2	13.1	15.0
<u>Adult Education Total</u>	0	0	0
 TOTAL DISTRICT REVENUES	 236.7	 330.7	 347.1

Source: Mountain West Research-North, Inc. 1982; School District Budgets 1981, 1982, and 1983.

Note: Totals may not sum due to rounding.

TABLE 3.3.2.6-31  
Expenditure History  
Elementary School District No. 2 (Pryor)  
FY 1981-83  
(\$000)

Source	Actual 1981	Approved 1982	Approved 1983
General Fund			
Administration	20.5	28.8	31.6
Instruction	126.5	171.7	167.8
Building Operation	28.5	34.0	41.0
Other Expenses	20.5	27.0	35.0
Capital Outlay	39.5	4.0	6.0
Total General Fund	235.5	265.5	276.4
Other Funds			
Transportation Fund	22.8	28.5	23.6
Bus Reserve Fund	0	0	0
Tuition Cost	0	0	0
Retirement Fund	19.7	23.3	32.0
Debt Service Fund	0	0	0
Building Reserve Fund	0	0	0
Other Funds	9.5	13.1	15.0
Total Other Funds	52.0	64.9	70.6
TOTAL EXPENDITURES	287.5	330.4	347.0

Source: Mountain West Research-North, Inc., 1982, from school district fiscal statements.

Note: Totals may not sum due to rounding.

### 3.3.3.2 Population and Economy

Hardin is the seat of Big Horn County government. The 1980 population of Hardin was 3,200 (30 percent of the county total). When the Big Horn north area is considered with the city of Hardin, the total population sums to 4,249 (38 percent of county population).

Hardin serves as a first-order trade center for most of Big Horn County and adjacent portions of surrounding counties and is particularly accessible given its location along I-90. Some second-order purchases are made in Hardin, but most higher order goods are available in Billings or Sheridan.

As shown in Table 3.3.3.2-1, the largest employment sectors in Hardin by place of residence are trade, service, and government. As shown in Table 3.3.3.2-2, the largest employment sectors in the northern part of Big Horn County by place of residence are agriculture, trade, and services.

### 3.3.3.3 Social Life and Cultural Diversity

Because the anticipated level of impact from the proposed mines is low, no detailed study of the social organization of Hardin was made. As the county seat and major population center of the county, and as a culturally mixed community located on the boundaries of the Crow Reservation, the residents of Hardin have experienced many of the processes and tensions described in sections 3.2.3 and 3.3.2.2. Further description of the history of Hardin is provided in the Historical Overview (HRA 1983), and discussion of the relationship between the Crow and non-Indian residents of the community is provided in the Socioeconomic Report by the Crow Tribe (AITS 1983). Since these descriptions provide an adequate basis for assessing the probable level of impact from the proposed mines, no further detail is presented here.

### 3.3.3.4 Housing

Tables 3.3.3.4-1 and 3.3.3.4-2 present U.S. Census data on Hardin and the Hardin area (Big Horn North allocation area) housing unit mix in 1970 and 1980. According to U.S. Census data, Hardin's housing stock grew from 990 units in 1970 to 1,360 units in 1980, an increase of 37 percent. Single-family units constituted 59 percent of the increase in units over the period. Mobile homes made up 35 percent of the increase and multifamily units composed the remaining 6 percent.

The revised housing data for Indian-occupied units in Hardin are presented in Table 3.3.3.4-3. These data provide the basis for the housing forecasts.

The Big Horn north allocation area gained fewer units than Hardin, but its overall growth rate of 73 percent was almost double that of Hardin. The mix of new houses was similar to Hardin and was composed of 51 percent single-family detached, 6 percent multifamily, and 44 percent mobile homes.

### 3.3.3.5 Facilities and Services

The facilities and services operated by Hardin include: general government, engineering and public works, police, and fire.

#### General government

Hardin is a relatively small town with a recorded 1980 census population of 3,215. Hardin city government realizes economy by having staff members overlap into several functional areas. In winter, there are

TABLE 3.3.3.2-1

Employment by Industry by Place of Residence  
City of Hardin  
1980

Industry	Hardin City		Big Horn County		Percent of Sector
	Number	Percent	Number	Percent	
Ag., Forestry and Fisheries	26	1.9	680	17.1	3.8
Mining	133	9.7	292	7.3	45.5
Construction	120	8.7	219	5.5	54.8
Manufacturing	6	0.4	43	1.0	13.9
TCPU <sup>a</sup>	78	5.7	139	3.5	56.1
Wholesale & Retail Trade	369	26.9	589	14.8	62.6
FIRE <sup>a</sup>	45	3.3	113	2.8	39.8
Services	431	31.4	1,274	32.1	33.7
Government	164	11.9	613	15.4	26.7
TOTAL EMPLOYMENT	1,372	100.0	3,962	100.0	34.6

Source: U.S. Department of Commerce, Bureau of Census, 1980.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

TABLE 3.3.3.2-2

Employment by Industry by Place of Residence  
Big Horn North  
1980

Industry	Big Horn North		Big Horn County		Percent of Sector
	Number	Percent	Number	Percent	
Ag, Forestry and Fisheries	157	31.0	680	17.1	23.1
Mining	17	3.3	292	7.3	5.8
Construction	14	2.8	219	5.5	6.4
Manufacturing	12	2.4	43	1.0	27.9
TCPU <sup>a</sup>	24	4.7	139	3.5	17.2
Wholesale & Retail Trade	68	13.4	589	14.8	11.5
FIRE <sup>a</sup>	24	4.7	113	2.8	21.2
Services	164	32.3	1,274	32.1	12.9
Government	27	5.3	613	15.4	4.4
TOTAL EMPLOYMENT	507	100.0	3,962	100.0	12.8

Source: U.S. Department of Commerce, Bureau of Census, 1980.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

TABLE 3.3.3.4-1

City of Hardin  
Housing Units by Type

Type of Unit	1970	1980	Change 1970 to 1980		
			Number of Units	Percent of Change (year-round)	Percent 1970-1980 Growth
Total Housing Units	990	1,360	370		37.4
Year-round Units	979	1,347	368	100.0	37.6
Single-family detached	680	898	218	59.2	32.1
Multifamily	232	255	23	6.3	9.9
Mobile homes	67	194	127	34.5	189.6

Source: U.S. Department of Commerce, Bureau of the Census, Detailed Housing Characteristics for Montana, 1970, 1980.



TABLE 3.3.3.4-2

Big Horn North  
Housing Units by Type

Type of Unit	1970	1980	Change 1970 to 1980		
			Number of Units	Percent of Change (year-round)	Percent 1970-1980 Growth
Total Housing Units	218	377	159		72.9
Year-round Units	218	364	146	100.0	67.0
Single-family detached	211	285	74	50.7	35.1
Multifamily	5	13	8	5.5	160.0
Mobile homes	2	66	64	43.8	3,300.0

Source: U.S. Department of Commerce, Bureau of the Census, Detailed Housing Characteristics for Montana, 1970, 1980.

TABLE 3.3.3.4-3  
 Year-round Housing Units by Type  
 City of Hardin

Type of Unit	Indian	Non-Indian	Total
Single-family detached	97	817	914
Multifamily	27	232	259
Mobile home	22	177	199
TOTAL	146	1,226	1,372

Source: Mountain West Research-North, Inc., 1982.

35 total employees, including the mayor and six council members and about 55 in summer. The general government function includes the city clerk, treasurer, the collection of fees and taxes, and the water billing department. There are two staff members for general government functions only.

In 1981, a new, joint city hall and shop were built at a cost of \$250,000. The office portion of the city hall is 2,498 sq. ft. and the shop portion is 5,280 sq. ft., for a total city hall/shop complex of 7,778 sq. ft. It was paid for totally from city funds using a combination of cash and revenue bonds.

#### Engineering and public works

The engineering department is responsible for conducting the uniform building code inspections for new and renovated structures in Hardin. They do not perform electrical, mechanical, or plumbing inspections. The majority of the 86 building permits issued in 1982 were for repairs or renovations on residential units (such as roofs, garage additions, carports, and the like). Only seven were for new homes. About 100 building permits have been issued each year for the last three years. Hardin's planning is done by Cumir Associates in Billings.

There are 18.87 miles of streets in Hardin; 16.52 are paved and 2.35 are graveled. The streets in Hardin are in good condition. About sixty blocks were paved and overlaid in 1982. No per mile maintenance costs were available. For equipment, Hardin has a motor patrol, two sweepers, and a flusner truck. The equipment is fairly new and in good condition. It is maintained in the city shop at city hall. This department has 4.25 personnel and usually hires two more people in the summer. The personnel level has remained the same during the last three years.

Hardin has a new sewage treatment plant that consists of oxidation ditches and an activated sludge plant. Its capacity is one million gallons, and can therefore handle a population of about 6,000 people. It is currently running at a little under one-half million gallons. The plant, finished in 1980, was constructed primarily with EPA and coal board funds. Although the city contributed some of the \$1.25 million cost, the EPA portion was 75 percent, and the coal board paid for most of the remainder. There are 1,173 service customers on the Hardin sewer system; 988 are residential and 185 are commercial. Of the commercial customers, 106 are charged at the residential rate because of their small size. The monthly fees of \$4.64 are being raised to \$5.15; they pay for operations and maintenance expenses and for retiring the revenue bonds on the new city hall building where the administrative space for the sewage facilities are located. The tap charge is \$250 for residential and \$500 for commercial. There is no plant investment fee. Other renovations or additions to the sewer system in Hardin include a new main line and a new sewer jet cleaner. The jet cleaner cost \$90,000.

Hardin has a chlorination, presedimentation, rapid sand filtration water system. The source of water is the Bighorn River. Hardin has filed for fifteen cubic feet per second (10,860 acre feet per year) of water rights. The local planning standard is 150 gallons per capita per day. Hardin's treatment capacity is 4 million gallons per day. The system was updated in 1978 and 1979. Over the last twenty years, the water department has been systematically replacing all mains; currently all mains are new and the whole town is on asbestos cement piping. Water in Hardin is metered at a monthly charge of \$5.20 for 3,000 gallons and 17 cents per 100 additional gallons. There is no plant investment fee. A one-mile water transmission line from the Bighorn River is currently being built by a grant from the coal board at a cost of \$675,000. There are two storage tanks west of town, each 500,000 gallons; one is steel and one is concrete. The storage tanks feed the town through a sixteen-inch and a twelve-inch water main. There is presently enough storage to handle twice the population that exists in Hardin. Usage runs about one-and-a-half million gallons per day in the winter and up to 1.5-2.0 million gallons per day in the summer.

Garbage collection in Hardin is accomplished by the city's garbage compaction truck, a driver, and two men. Service includes once-a-day pickup for commercial establishments and twice-a-week pickup for resi-

dential customers. The fee is \$48 per year for residences and \$364 a year for commercial customers. The fees pay for expenses and a capital replacement fund earmarked at \$10,000 a year. The city owns a landfill that the county uses, operates, and maintains. The city owns two trucks, a 1980 and a 1978 model; it costs about \$3,500 a year to maintain these trucks.

Of Hardin's seven parks, three parks (5 acres) are developed; 2.25 acres are undeveloped. One park was developed within the last two years; the others are older. They are operated and maintained by teenagers in the summer. The school district has assumed the function of operating recreation programs, mostly in the summer. One of the parks has a swimming pool that has been repaired but still has leakage problems. Currently, the mayor is meeting with the school district superintendent to discuss the possibility of building a new indoor pool (Hochalter, personal communication, November 1982).

### Police

Hardin contracts with the Big Horn County Sheriff's Department for police protection, for which they pay 32.5 mills from the city's budget on an annual basis. A city police commission has just been established to meet regularly with the county commissioners and sheriff's department to increase cooperation and understanding between the two jurisdictions.

### Fire

Hardin has a twenty-man, volunteer fire department which serves the city. A new truck costing \$64,000 is being purchased in 1983 from a coal board grant. Hardin is selling its 1964 truck, but it also has a 1975 model. The fire house is a metal building with two stalls. The sheriff's department handles fire dispatching. The budget comes from the city's general fund.

#### 3.3.3.6 Fiscal

#### Financial profile: city of Hardin

Table 3.3.3.6-1 gives three years' financial data for Hardin. The following summarizes the data and assesses the town's potential to accommodate growth and its resulting fiscal consequences.

Hardin's population has shown little change since the 1980 Census and indicates the town has been in a slow growth status. The increase in housing stock, which has been slow but steady, does not seem to be reflected in the town's taxable valuation, which has slightly declined since 1980 in spite of inflation. The decline is probably due to a statewide 12 percent reduction in commercial assessments for equalization purposes. The municipal property tax levy has dropped seven mills since 1980 in spite of the reduction in taxable valuation. Hardin levies about sixty-one mills for general purposes (the maximum is sixty-five mills), plus twenty-two mills for special purposes, such as capital improvements, firemen's pension, city-county planning, parks and playground, and insurance.

FY 1983 revenues are budgeted to be lower than for preceding years, reflecting the greater cash (\$215,000 starting balance) available for appropriation this year. Property taxes are the major revenue source and usually account for 40 to 50 percent of total revenues. Licenses and permits are expected to be the second largest revenue source for FY 1983, with \$86,550 budgeted (\$40,000 of which is anticipated from engineering fees and building permits). Corporate license tax constitutes 7 percent of general fund revenues, and local fees plus miscellaneous revenues contribute another 14 percent. Intergovernmental revenues have decreased since the general fund no longer receives motor vehicles fees and gas tax revenues. Budgeted general fund expenditures show an increase both for operating and capital outlay, with

TABLE 3.3.3.6-1

Financial Profile  
City of Hardin  
FY 1981-1983

Item	FY 1981 (Audited Amounts)	FY 1982 (Actual or Estimated)	FY 1983 (Budgeted)
<b>Resources</b>			
Population	3,215	3,195	3,170
Taxable Valuation	\$3,120,189	\$3,350,447	\$3,050,578
Per Capita	\$970.51	\$1,048.65	\$962.33
Revenue per Mill	\$3,120	\$3,350	\$3,051
Federal Revenue Sharing Receipts	\$122,000	\$16,120	\$17,750
Property Tax Rates			
Total Overlapping Levy <sup>a</sup>	191.15 mills	182.60 mills	177.01 mills
Total This Entity	90.73 mills	85.55 mills	83.73 mills
General Purpose	68.10 mills	61.02 mills	60.72 mills
Special Purpose	19.81 mills	21.87 mills	21.78 mills
Debt Service	2.02 mills	2.66 mills	1.23 mills
<b>General Fund Position<sup>b</sup></b>			
Starting Cash Balance	\$70,687	\$100,000	\$214,582
Current Revenues	\$481,201	\$446,755	\$367,766
Property Tax	\$194,168 (40%)	\$204,400 (45%)	\$185,196 (50%)
Licenses & Permits	\$23,007 (5%)	\$69,650 (16%)	\$86,550 (23%)
Fees & Charges	\$7,579 (2%)	\$7,385 (2%)	\$10,010 (3%)
Other Taxes (Corp. Lic.)	\$13,727 (3%)	\$13,000 (3%)	\$25,000 (7%)
Other Local	\$119,959 (25%)	\$41,000 (9%)	\$40,010 (11%)
Nonlocal	\$122,760 (26%)	\$111,320 (25%)	\$21,000 (6%)
Total Expenditures	\$387,355	\$456,755	\$506,475

TABLE 3.3.3.6-1 (cont.)

Financial Profile  
City of Hardin  
FY 1981-1983

Item	FY 1981 (Audited Amounts)	FY 1982 (Actual or Estimated)	FY 1983 (Budgeted)
Expenditures per Capita	120.48	142.96	159.77
Operating & Maintenance	\$278,895 (72%)	\$265,955 (58%)	\$310,710 (61%)
Capital Outlay	\$108,460 (28%)	\$190,800 (42%)	\$195,765 (39%)
Transfers			
From Utility Funds	0	0	0
To Utility Funds	0	0	0
Enterprise Funds (water, sewer, garbage) <sup>c</sup>			
Starting Cash Balance	NA	NA	NA
Net Transfers In (Out)	\$234	0	0
Current Revenues	\$345,880	\$363,693	\$357,730
Fees & Charges	\$323,293 (93%)	\$344,303 (95%)	\$338,880 (95%)
PIFs	\$6,210 (2%)	\$7,640 (2%)	\$3,500 (1%)
Other	\$16,377 (5%)	\$11,750 (3%)	\$15,350 (4%)
Total Expenditures	\$295,657	\$363,693	\$592,670
Debt Status			
Debts Outstanding			
G.O. <sup>d</sup>	\$45,500	\$39,000	\$32,500
Revenue <sup>e</sup>	\$240,000	\$375,000	\$355,000

TABLE 3.3.3.6-1 (cont.)

Financial Profile  
City of Hardin  
FY 1981-1983

Item	FY 1981 (Audited Amounts)	FY 1982 (Actual or Estimated)	FY 1983 (Budgeted)
Annual Debt Service			
G.O.	\$8,798	\$7,533	\$8,600
Revenues	31,596	41,712	40,300
Remaining G.O. Capacity <sup>f</sup>	828,153	899,125	821,662

Source: 1980 Census; 1982 and 1983 population estimates, Mountain West Research-North, Inc., 1982.

Note: NA = not available.

<sup>a</sup>Includes county, school district, road, and special district levies applicable in Hardin.

<sup>b</sup>Represents general fund activities which include general government, public safety, public works, public health, culture and recreation. Not included are the special revenue funds (such as gas tax, which is used for streets), federal revenue sharing, or capital improvements funds. FY 1981 data are actual amounts as reported in the 1982 budget; 1982 and 1983 amounts are budgeted figures.

<sup>c</sup>Data provided here are aggregated totals from the water, sewer, and solid waste enterprise funds.

<sup>d</sup>Represents the remaining principal balance on a 1977 G.O. issue of \$65,000 for a fire truck.

<sup>e</sup>Represents the remaining principal balance on a 1976 water revenue issue of \$300,000, and a 1981 water, sewer, and garbage revenue issue of \$150,000.

<sup>f</sup>Municipal bonding capacity at 28 percent of taxable valuation, less outstanding G.O. bonds.

total expenditures budgeted at about \$500,000, up 10 percent from the previous year. However, if the total amount is spent, the town would have no cash reserve.

Hardin operates water, sewer, and garbage utilities. They are supported solely from user fees and charges, which pay for operating costs and the debt service on the revenue bonds. While total enterprise fund revenues have stayed at nearly the same level for the past three years (about \$360,000 annually for water, sewer, and garbage), expenditures budgeted for FY 1983 show a larger increase due to the availability of surplus cash for appropriation. This indicates that system revenues have been more than sufficient to cover costs, including debt repayment.

Hardin has a small general obligation debt balance of \$32,500 out of a \$65,000, 1977 issue for a fire truck. Annual principal and interest payments of about \$8,600 are made from a small mill levy. A 1976, \$300,000 water system revenue bond issue has \$210,000 remaining principal, and a 1981 revenue bond issue of \$150,000 (paid equally out of the water, sewer, and garbage funds) has a remaining balance of \$145,000. Total annual debt payments are about \$40,000 for both issues. Since only the general obligation bonds are limited, the town has about \$822,000 remaining debt capacity (calculated at 28 percent of its taxable valuation).

In conclusion, Hardin has had no particular problems managing its financial affairs but has not been in a growth mode. Should rapid growth occur, there would be considerably more pressure for services, with resulting financial consequences. Since the town relies mainly on a property tax, it may have difficulty responding to immediate needs because of the inherent lag in the property tax base, particularly since mine development would occur in the county and not directly add to Hardin's tax base. The town has some capacity to bond for capital needs (about \$822,000 in FY 1983). The enterprise funds are currently self-supporting; utility fees would probably be maintained at a level to assure continued support.

### 3.3.4 Decker and Surrounding Area

#### 3.3.4.1 General Description

This section describes the southeastern corner of Big Horn County that is located east of the Crow Indian Reservation and south of the Northern Cheyenne Indian Reservation. Although Decker is the area's only community, Spring Creek is another potential community that could be developed if more people moved into the area. The section is divided into six parts. Section 3.3.4.2 describes the area's population and economy. Section 3.3.4.3 describes social life and cultural diversity in the Decker area. Local housing conditions are portrayed in Section 3.3.4.4. Sections 3.3.3.5 and 3.3.3.6 note that because no jurisdictional units are present in the Decker area, discussions of facilities/services and fiscal conditions are not appropriate. Schools in the Decker area were discussed at the county level (see Section 3.3.2.6).

Kirby, Decker, Birney, and Otter Creek are open country communities located in the southern portions of Big Horn and Rosebud counties, Montana. The communities are located in the Tongue River Drainage in broken prairie and rolling hills that have been used primarily for cattle grazing. Average annual precipitation is low, qualifying the area as semiarid. None of the communities are incorporated, and each has gradually provided fewer services than during its highest population period of the 1920s when homesteading was at its peak.



#### 3.3.4.2 Decker/Spring Creek Area

##### Population and economy

In the Decker area, most of the 1980 population of 189 lived in rural areas and pursued agricultural endeavors or in an area near the mine sites. Most of those who lived near the mine sites worked at the mines or were employed in a secondary service industry. Table 3.3.4.2-1 shows the composition of employment of residents of the area. Agriculture predominates but other sectors are represented.

#### 3.3.4.3 Social Life and Cultural Diversity

##### Background

Two major economic and technological forces have operated in the Decker study area over the recent past. The first and more continuous has been the gradual absorption of small ranch and homestead properties into large ranch operations. This has been made possible by increasing mechanical efficiency of large-scale operations coupled with the economic infeasibility of small agricultural operations. The second, more recent and dramatic change has been the development of large surface coal mining operations near Decker.

Each community has gradually lost population during the past fifty years. Decker and Otter Creek communities have additionally lost population since 1970, primarily due to the purchase of coal bearing lands and the accompanying out-migration of former ranchers. Effectively, no new in-migration has compensated for recent out-migration. Persons nearing retirement have moved away, primarily to Sheridan. A few families have relocated to agricultural locations outside the study area. No young adults are operating their own agricultural operations in the Decker or western Otter Creek areas. Persons remaining in the area, including renters of former ranches now owned by coal companies, are almost exclusively long-term area residents.

##### Changes in social organization

Diversity/complexity. Communities differ in the degrees of social, economic, and political diversity and complexity. Changes in each dimension relate to both the long-term technological trend and short-term mining effects discussed above.

The age structure of each community appears to be growing older. Agricultural communities typically have above median age profiles that have continued to grow older since World War II. This, coupled with the loss of population, has reduced the need for community social services. Decker, Birney, and Kirby continue to have elementary schools, though the number of schools and students in the area is considerably reduced from three decades ago. The distance from well established services is associated with current services. Birney, the most isolated community has a store, gas station, school, and religious services; Kirby, the next most isolated, has a bar as well as a school. The church no longer is operating. Western Otter Creek has no community social services; children attend school at Decker. Decker continues to have a school, post office-general store, and bar. New county road maintenance shops and deputy sheriff are located in the Decker area. Decker also was the site of a temporary construction camp and a proposed new planned community development, which has not materialized. No new commercial or public services have occurred in the communities except for the road maintenance section and deputy in Decker, both of which primarily were brought in to accommodate the increased day use population of miners commuting to Decker area mines.

TABLE 3.3.4.2-1

Employment by Industry by Place of Residence  
Decker Area  
1980

Industry	Decker		Big Horn County		Percent of Sector
	Number	Percent	Number	Percent	
Ag, Forestry and Fisheries	44	27.8	680	17.2	6.5
Mining	22	13.9	292	7.4	7.5
Construction	13	8.2	219	5.5	5.9
Manufacturing	14	8.9	43	1.1	32.6
TCPU <sup>a</sup>	0	0.0	139	3.5	0.0
Wholesale & Retail Trade	17	10.8	589	14.9	2.9
FIRE <sup>a</sup>	18	11.4	113	2.8	15.9
Services	16	10.1	1,274	32.1	1.2
Government	14	8.9	613	15.5	2.3
TOTAL EMPLOYMENT	158	100.0	3,962	100.0	4.0

Source: U.S. Department of Commerce, Bureau of Census, 1980.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

The political diversity/complexity of the communities in the area also appears to be minimal. A women's organization, the Decker Women's Club, which formerly operated actively on behalf of the area, has become a social club with more members in Sheridan than in the rural communities. No formal political organizations exist in the rural communities. The school trustees continue to be elected from long-standing residents with agricultural backgrounds. One member of the Big Horn planning commission resides near Decker. By his admission, there has been little reason for increased local political activity in the area. With loss of population and services, there is little need for more government. Local residents look to state and federal legislation to protect their interests from exploitation by energy companies or environmental preservationists. Some have joined organizations, particularly resource councils, to further their interests with the state legislature. Their major concerns have been protection of water quantity and quality and air quality, all critical to an area that is dependent upon grazing that has a relative paucity of springs. Decker and Otter Creek residents have been particularly upset by perceived degradation of springs and air quality because of mining, while residents of Birney and Kirby fear such problems may soon be upon them. Area residents also are concerned with a host of "people pollution" problems, which they see related to mining. Collectively, these range from increased traffic speed and flow by unfamiliar persons to more serious nuisances such as trespassing, poaching, and rustling.

Although the range of political issues has increased with recent surface mining, actual participation in political affairs and voting probably has been reduced due to population losses and the scarcity of issues that are seen as locally amenable to political action.

Economic diversity/complexity has changed little in the study area communities. The exception is that ranches who sold or leased land to energy corporations have gained a new source of revenue. Since many of these persons have left the area, economic impacts are not evident. Among those who have remained, the efficiency of their operations seems to have increased because of newer and bigger machinery, which have come to replace former ranch hands.

The most obvious change in employment, increased mining, has primarily affected persons and communities outside the Decker-Birney area, since most miners commute from the Sheridan area. However, 1980 census data indicate that 35 residents of the Decker area were employed in mining or construction jobs -- compared to 44 who were employed in agriculture. Most coal tax revenues flow to Helena and Hardin, leaving primarily symbolic developments in the economy around Decker. The agricultural base that provided the local jobs and local revenue has been gradually displaced by mining that provides few jobs to long-term ranchers and essentially no increase in services.

Changes in Kirby and Birney during recent years have been insignificant. Decker, however, has become a skeleton of a former community. It has lost population, and, more importantly, much sense of community. Western Otter Creek has gradually been undergoing changes similar to Decker, except Otter Creek lacks the infrastructure for providing services that Decker has, making it even more vulnerable to extinction.

### Stratification

Each of the Decker-Birney study area communities traditionally has had clear stratification based upon land ownership characteristics (tenure and size of holdings). A second criterion of status was whether one was a local long-term resident, preferably a native, or a more recent migrant to the area. Long-term ranchers occupied the highest status. Transients without land occupied the lowest. All others fell in between. Categories frequently mentioned as "undesirables" were miners and Native Americans, though few of either lived in the communities. Decker and Kirby each had a family or two of miners, which interviewers indicated were not welcomed into the agricultural communities. However, one Decker mining family, in which both husband and wife were local natives, was well received and was instrumental in community

activities, including the school board. This indicates that long-term familiarity may transcend biases related to land ownership or occupation.

Since none of the communities had many newcomers or outsiders, the fascination toward them was more as a point of reference for themselves than as a result of personal contact. Only in Decker have newcomers begun to fill a void created by the gradual loss of long-term ranchers.

#### Outside linkages

Neighbor and kinship interaction constitute the most common and important forms of sociation in these agricultural communities. The continuance of these networks as friends and relatives move away constitutes the primary types of outside linkages for longtime community members. The most common focus of such interaction is the Sheridan area, the urban center to which residents of the area are affiliated, and the location most likely to attract them when they relocate.

Voluntary associations are rare in the area. The Decker Women's Club now meets more frequently in Sheridan than in Decker. Few ranchers mentioned membership in voluntary associations, though a few have participated in educational and agricultural organizations within the state. Most also have had interaction with agricultural extension services. For the greater part of their lives, though, the residents of the area remain personally independent of formal organizations from outside. Their primary concerns and activities are closely allied with their personal sphere of influence.

Economic linkages follow patterns similar to social linkages. Most shopping and banking is done in Sheridan or Billings. Hardin and Forsyth, the respective county seats, are utilized for essentially no services for Decker and Otter Creek, except those which are politically essential, such as registration and taxation. Birney residents travel to Miles City for some entertainment and shopping just as Kirby residents travel to Hardin. For the most part, though, Sheridan is the local social and business center. Children from the area usually room and board in Sheridan while attending high school. Ranchers mentioned that in recent years they have felt themselves becoming a minority in "their town" as Sheridan merchants have begun to cater to the newcomers employed in the mines. However, they still report feeling very comfortable and well treated in Sheridan.

Political linkages outside the community also have remained essentially informal and personal rather than formally organized. The major changes that have occurred through political action have been the improvement of the Sheridan-Decker road, the placement of a deputy sheriff in Decker, and the creation of a two-employee highway maintenance shop in Decker. Each of these additions was perceived by local residents as necessary because of the increased traffic in the area as well as attendant problems associated with road users. (Speeding, drunken driving, danger to school busses, traffic noise, and more frequent theft, trespassing, and poaching were seen as consequences of development which needed to be rectified.) In addition, area residents felt they deserved protection and compensation for these increasing problems that could no longer be handled in the former informal ways that required personal recognition and responsibility by all parties. The primary method of applying political pressure was through direct personal contact with the county commissioners. Grumbling among local residents led several influential persons to communicate concerns to the Big Horn County commissioners who eventually allocated resources to the community. The Decker Women's Club and the previously mentioned head of the planning board are noteworthy in this regard. Although local residents agree that the changes have improved the local access and safety, the symbolic importance is notable. The local community had been the focus of revenues generated by coal development as well as the site for disruption and annoyance. They desired recognition for the burden they had shouldered. The political contributions provided these while serving genuine needs as well.

### Integration (coordination and cooperation)

Rural life in isolated areas is based upon levels of personal recognition and trust developed over long time periods through the sharing of necessary activities and sociation. These form the foundation of the integration of community members. Historically, these have ranged from sharing the work of operating local schools and agricultural activities to pulling neighbors out of ditches, entertaining one another, and collectively being aware of and sharing in the variety of life events. Life in small, isolated, and stable communities eventually bares most skeletons in the closets: they are exemplary of the concept of integration, particularly when members are relatively homogeneous.

These characteristics could have been used to describe each Decker area community until the past decade. They still apply to the more remote areas of Kirby, Otter Creek, and Birney. The other areas have gradually disintegrated. Old-time residents have left the area as their land has been purchased by energy companies, particularly in Decker and western Otter Creek. With them has gone the essential requisite of sharing activities. The remaining ranchers now are more independent, particularly due to better machinery and ease of transportation. Ironically, the improved road and higher incomes that come from coal development for the Decker area ranchers were important in reducing both community size and need for integration. The nearly universal comment by area residents was, "People don't get together any more." The areas which lie beyond a comfortable perimeter from the Decker area, roughly fifteen miles off the paved road, retain considerably more of their prior character.

Newcomers traditionally are not quickly considered to be community members. Birth in the area is the most common criteria of an old-timer. Decades of residence, particularly through marriage into an old-time ranch family, may also qualify one for that status. The trust and acceptance that follow years of cautious observation and shared activity are not lightly taken. Consequently, acceptance of newcomers into the study area during the past decade has been slow. Persons employed in nonagricultural occupations, essentially mining personnel, have not been integrated unless they had old-time agricultural roots in the community. Ranchers frequently reported that they knew their ranch neighbors disliked mining and miners. Occasionally, they candidly admitted holding the sentiment themselves. Almost universally, the longtime ranchers acknowledge that they had not socialized with the newcomer miners. Teachers supplemented these interviews by confiding that children of mining personnel are regarded as "different;" that is, inferior, by ranchers and their children. They partially accounted for this by an observed transience and unpredictability of enrollment by those with nonagricultural backgrounds, but the more important cause seemed to be an established bias against nonagricultural newcomers in their area.

### Perceptions of the community

Integration is the most essential concept for interpreting the functioning of the small, isolated agricultural communities exemplified by those in the study area. Lacking the differentiation of denser and more industrialized communities, their activities tend to occur as a whole -- the distinctions between political, economic, formal, and other institutional categories are blurred in these communities. Instead, residents regard community activities as personal, shared elements of life within a mutually recognized group. As long as activities are needed and executed by the communal group, there is a shared recognition and "awareness." As the need for activities is lost, so is the basis for this subjective dimension for community. In Decker, that sense is primarily held in retrospect; the loss of continuing identity is recognized. It persists in the more outlying communities. The current and former residents around Decker recognize and feel the passing of the sense of shared identity that they had with the place and its people. At the same time, they see the loss as an inevitable fate following the utilization of a previously unused and desirable resource, coal. They are glad for the good, though frequently demanding, times of the integrated ranch community. Persons in the more remote communities fear the loss they have seen in neighboring Decker, a difficult admission for persons who define much of their lives in terms of fierce independence. One respondent told of driving a drunk neighbor home, as had been done semiannually

for decades, with a pride in contributing to community well-being. It was an activity one ought to do, like attending the school Christmas program, sharing in fall roundup, or assisting at the time of a birth or death. The pride of independence, coupled with the willingness to share and assist when necessary, contributes to their perception that it is a way of life superior to others, but reserved for the able and competent. Honesty, trust, and integrity are the bonding concepts developed through long-term, mutual needs accomplished informally and collectively.

Some community dissatisfaction due to coal development even in outlying communities was expressed in interviews. Ranchers felt less able to control their own land because of increased traffic of outsiders. But, they are continuing to assist each other by identifying trespassers or poachers and notifying neighbors of their presence. They are aware that no formal mechanisms are likely to solve any increase in problems encountered in their relatively remote and sparsely settled areas.

#### 3.3.4.4 Housing

As shown in Table 3.3.4.4-1, the Decker/Spring Creek area's housing stock grew from 93 units in 1970 to 108 units in 1980, an increase of 16 percent. However, the supply of year-round units only increased by three units between 1970 and 1980, indicating that either much of the growth over the period was in nonyear-round housing or that many of the year-round houses in 1970 were not occupied on a year-round basis in 1980. Table 3.3.4.4-1 indicates that all of the housing growth in the 1970s in this area consisted of multifamily units and mobile homes. While a few single-family units may have been built, others were abandoned over the decade.

Although there are a few subdivisions currently being developed in the Hardin area (see Section 3.3.2.3), one large but undeveloped subdivision in the Spring Creek area appears to have more potential to accommodate workers employed in the Decker/Spring Creek area. This subdivision, known as "Spring Creek," was approved in 1978 and has a sewer lagoon and mainline water system in place. Spring Creek's preliminary plan allows for the development of single-family units, multifamily units, and mobile homes and provides space for recreational vehicles, a school, a church, and commercial and park space.

According to its developers, Spring Creek has not been developed because of insufficient demand for housing in the area. The developers estimate that demand for at least sixty mobile homes would be needed before any development would take place. After the mobile home park and/or recreational vehicle park were developed, Spring Creek's developers would begin an effort to stimulate commercial activity and construction of permanent housing units if more housing demand in the area were present. The developers estimate that construction of permanent units could begin within ninety days of a decision to proceed with development and that modular houses could be ready for occupation shortly thereafter.

#### 3.3.4.5 Facilities/Services

There are no local jurisdictional units in the Decker/Spring Creek area. Consequently, no discussion of facilities/services is appropriate for this geographic area. Public elementary and secondary schools are discussed at the county level.

#### 3.3.4.6 Fiscal

There are no local jurisdictional units in the Decker/Spring Creek area. Consequently, no discussion of fiscal conditions is appropriate for this geographic area. Public elementary and secondary schools are discussed at the county level.

TABLE 3.3.4.4-1  
Decker/Spring Creek Area  
Housing Units by Type

Type of Unit	1970	1980	Change 1970 to 1980		
			Number of Units	Percent of Change (year-round)	Percent 1970-1980 Growth
Total Housing Units	93	108	15		16.1
Year-round Units	93	96	3	100.0	3.2
Single-family detached	83	57	-26		-31.3
Multifamily	0	17	17		
Mobile homes	10	22	12		120.0

Source: U.S. Department of Commerce, Bureau of the Census, Detailed Housing Characteristics for Montana, 1970, 1980.

### 3.4 Crow Reservation and Communities

#### 3.4.1 Introduction

This section is divided into six sections. Section 3.4.2 describes the existing environment of the Crow Reservation as a whole. Section 3.4.3 focuses on Crow Agency and the northeast area of the reservation. Section 3.4.4 describes the Lodge Grass and the southeast area. The central and west areas are described in sections 3.4.5 and 3.4.6, respectively. Section 3.4.7 provides a reference for a description of the Crow Indians who live off the Crow Reservation.

#### 3.4.2 Crow Reservation

##### 3.4.2.1 General Description

Although the Crow Indian Reservation includes parts of Big Horn, Yellowstone, and Treasure counties, this study focuses on the part of the reservation that is located in Big Horn County. The principal communities in this part of the reservation include Crow Agency, the seat of tribal government, Lodge Grass, and Wyola. Other communities include St. Xavier and Pryor. In 1980, the Crow population was very young, with an average household size of 4.29 persons. These characteristics can be attributed to a high birth rate and to lack of private financing and/or government support for new housing development.

The Crow Reservation economy is dominated by agricultural and government service to the Crow Tribe. The reservation's small trade and service sector sells only a small range of goods and services, as most of the Crow Indians' purchases are made in Hardin and Billings. Crow Indians have not found many employment opportunities off the reservation, and Crow Indian unemployment has traditionally ranged between 30 and 50 percent.

##### 3.4.2.2 Population and Economy

According to the 1980 census, the total population of the Crow Indian Reservation in 1980 was 5,645 people. However, as indicated in Section 3.1-1, the census count was revised upward to take account of a census undercount of the Crow population.

Indians comprise an estimated 85 percent of the total population of the reservation (Mountain West Research-North, Inc. 1982). About 97 percent of the on-reservation population live along the Bighorn or the Little Bighorn River valleys; the remainder lives in the Pryor area (Crow Tribal Labor Force Report 1980).

The age composition of the Crow tribe is very young due to a high birth rate (37.5/1,000 compared to the non-Indian birth rate of 19/1,000) (Crow Tribal Labor Force Report, 1980). A recent study has stated:

"Forty-three percent of all tribal members are under 18 years of age. Fifty-four percent of all tribal members are under 23 years old and . . . 75 percent . . . are under 35 years of age." (Crow Tribal Labor Force Report 1980.) This age composition implies that there is a large, potential Crow labor force on the reservation.

The on-reservation economy consists of agriculture and government service to the Crow Tribe, either funded directly or indirectly by the federal government (Crow Tribal Labor Force Report 1980.). There is a small trade sector, but it deals mostly with first order goods and services.



The unemployment rate of Indians on the reservation has been estimated between 35 and 54 percent. Traditionally, the Indian population has been reluctant to venture from the reservation in search of employment. (Crow Tribal Labor Force Report 1980.) This implies that the seemingly large labor force that potentially exists on the reservation may not be a factor in off-reservation development.

#### 3.4.2.3 Social Life and Cultural Diversity

For this discussion, please see the Crow Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

#### 3.4.2.4 Housing

This section is divided into three parts. The first part presents the 1980 housing inventory that is used to make housing unit forecasts. The final two parts of the section present information on housing assistance programs that can be used to construct and renovate housing on the Crow Reservation. Subsequent sections present the housing stock assumptions that will be used to make housing forecasts for the four allocation areas included in the reservation.

##### 1980 housing unit mix

Table 3.4.2.4-1 presents the assumed 1980 housing unit mix for the Crow Reservation. The number of Indian and non-Indian housing units were derived using the methodology presented in Section 2.3.3.3. The housing unit mix is assumed to be similar for both Indian and non-Indian groups and is based on the actual unit mix as reported in the 1980 census. As shown, about 80 percent of all year-round units were single-family detached units. Although the name "single-family unit" implies that each unit is occupied by only one family, local officials have indicated that many of the single-family units on the reservation are actually occupied by more than one nuclear family (Plentyhawk, personal communication, October 1982). Multifamily and mobile home units each make up 10 percent of total year-round units.

##### Housing conditions

The 1982 BIA housing condition survey classified 898 or 73 percent of the 1,223 total units as "standard." Of the 325 units in "substandard" condition, 135 units (41.5 percent) needed renovation and 190 units (58.5 percent) needed replacement. More detailed information on the programs available to improve substandard housing is presented in the next section.

##### Housing programs

Virtually all of the housing for Indian households on the Crow Reservation has been provided through either a HUD or a BIA housing program. The HUD program finances construction of new housing and then provides mortgage loans to new owners or subsidized rents to low-income renters. The BIA's housing improvement program is for non-HUD housing and has been designed primarily to finance renovation of existing substandard units but may also be used to finance new construction when the applicant has not been able to procure housing assistance from any other source.

TABLE 3.4.2.4-1  
1980 Year-round Housing Units  
Crow Indian Reservation

Type of Unit	Indian Units	Non-Indian Units	Total	Percent of Total
Single-family detached	887	554	1,441	80
Multifamily	115	72	187	10
Mobile home	115	72	187	10
TOTAL	1,117	698	1,815	100

Source: Mountain West Research-North, Inc., 1982.

HUD program. The HUD-administered program for new housing construction financed the construction of 365 new houses on the Crow Reservation between 1972 and 1978. These units were allocated to the Crow Reservation's six planning districts based on their proportion of the reservation's total Indian population. A representative from each district then awarded the new houses to families based on need. The criteria used to determine need took into consideration family size and income but required that all new housing be built near existing roads on stable soils.

After 1978, a moratorium on HUD-financed housing took effect on the Crow Reservation. This moratorium was due to a "poor payment record" on many of the newly completed units. However, the moratorium was lifted in mid-1982, and 115 new HUD-financed units are now scheduled for construction on the reservation. These units will be built by Crow contractors, whose current capacity is about 40 units per year. Eighty of these units will be purchased by Indian families, and 35 will be rented by low income families whose yearly household incomes are under \$9,000. These units will be allocated equally to each of the six planning districts regardless of their population and then distributed by district representatives based on need. All of the houses will be three- or four-bedroom units that are designed to accommodate two or three families. At present, between 2,500 and 3,000 applicants are on the waiting list for these new units. (Plentyhawk, personal communication, 1982.)

BIA housing improvement program. BIA's Housing Improvement Program (HIP) provides grants and loans to assist Indians renovate and purchase existing houses and to construct new houses when they have not been able to obtain housing under the HUD program. The grants and loans are classified into four categories of assistance.

Category A provides grants up to \$2,500/unit for renovations like weatherproofing, reroofing, rewiring, or painting that will improve substandard units but not bring them up to standard condition. In FY 1982, HIP granted about \$5,200 to repair twelve dwelling units on the Crow Reservation under this category.

Category B provides loans up to \$20,000/unit to bring substandard units to standard condition. In FY 1982, the housing improvement program made about \$90,000 in loans to renovate ten units on the reservation.

Category C makes grants up to \$5,000 to help Indian households become eligible for housing loans from other credit sources. In FY 1982, Category C grants of \$30,000 were used to complete renovations on eleven units and begin renovations on six additional units.

Finally, Category D provides loans up to \$45,000 unit for construction of new housing units. In FY 1982, loans under Category D totaled \$20,000 for construction of five new units that have not yet been completed. (Bureau of Indian Affairs 1982.)

#### 3.4.2.5 Facilities and Services

##### Overview

In many cases, the finance, administration, and operation of public facilities and services on the Crow Indian Reservation involve multiple governmental entities. The Crow Indian Tribal Government (CITG), Bureau of Indian Affairs (BIA),<sup>1</sup> Indian Health Service (IHS),<sup>2</sup> other federal and state agencies, and local public and private sector organizations provide local services to reservation residents.

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<sup>1</sup>In the Department of the Interior.

<sup>2</sup>In the Health Service Administration of the Public Health Service of the Department of Health and Human Services.

The public facilities and services in operation on the Crow Indian Reservation include the following, as summarized in Table 3.4.2.5-1:

- 1) General government
- 2) Police
- 3) Fire
- 4) Hospital and health services
- 5) Social services
- 6) Mental health
- 7) Community health
- 8) Recreation

#### General government

General government is defined as the major offices which are primarily responsible for the full-time administrative functions of the Crow Indian tribal government. Other programs that are part-time, financed totally or partially by the federal government, or use private-sector services have been excluded from this presentation. It is assumed that the project could affect major governmental offices and programs. While program services are not discussed in this report, the net fiscal effects of the project on levels of demand for those services are presented in the fiscal analysis.

General government on the reservation consists of the professional staff for operational planning, organization and staff assistance, and division management functions of the tribal government. The CITG general government staff consists of approximately twenty-five persons and is considered adequate for the current levels of demand for services (Fritzler, personal communication, October 1982). Office space for general government staff is located in the Crow Indian administration building in Crow Agency, with supplemental office space available in the Heritage Center building and the Sun Lodge Motel complex. The general government facilities have surplus capacity that will be adequate for expected future levels of demand. (Loomis, personal communication, November 1982.)

The FY 1983 budget for Crow Tribe administrative staff and expenses is \$407,000, with operations and maintenance of tribal facilities budgeted at \$248,000 (Crow Indian Tribal Government 1982).

#### Police

The Bureau of Indian Affairs/Crow Indian Tribal Police Department operates as a consolidated reservation law enforcement agency. Crow Police Department (CPD) headquarters are located at the public safety building in Crow Agency. The CPD employs fifteen sworn officers, twelve of whom are stationed in Crow Agency, two in Lodge Grass, and one in Pryor. The number of sworn officers is considered to be the minimum number adequate for the current levels of demand. The seven patrol vehicles operating throughout Big Horn County are considered adequate for the current number of sworn officers (Parisian, personal communication, November 1982.)

The public safety building provides office, dispatch, and detention facilities. With six detention cells and space for twenty-four inmate beds, the building has surplus capacity at the current levels of demand. Quantitative information about the amount of space (sq. ft.) in the public safety building is unavailable. The communications center and radio dispatch system are in good condition. The patrolmen stationed in Lodge Grass and Pryor do not have office facilities. (Parisian, personal communication, November 1982.)

The Big Horn County Sheriff's Department, which has jurisdiction over non-Indians on deeded lands within the boundaries of the Crow reservation, stations one deputy in Lodge Grass, one deputy in Decker,

TABLE 3.4.2.5-1

Status of Existing Personnel, Capital Facilities, and Equipment  
Crow Indian Reservation

Services	Personnel	Capital Facilities and Equipment
General Government	25 professional staff adequate	-- sq. ft. area not available <sup>a</sup> surplus capacity
Police	15 police officers adequate	-- sq. ft. area not available <sup>a</sup> surplus capacity -- 24 detention beds surplus capacity -- 7 patrol vehicles adequate capacity
Fire	6 part-time deficit	-- 4,000 sq. ft. deficit capacity -- 4 fire trucks (range and grass fire) 1 - 1,000 gallon tank -- 100 gpm pump 1 - 500 gallon tank -- 60 gpm pump 1 - 200 gallon tank -- 80 gpm pump 1 - 150 gallon tank -- 40 gpm pump deficit capacity
Hospital and Health Services	5 physicians deficit 3 dentists adequate	-- 34 hospital beds adequate capacity for standard of 4 beds per 1000 population
Emergency Services	refer to Section 3.3.2.4	-- no ambulances deficit capacity refer to Section 3.3.2.4

TABLE 3.4.2.5-1 (cont.)

Status of Existing Personnel, Capital Facilities, and Equipment  
Crow Indian Reservation

Services	Personnel	Capital Facilities and Equipment
Social Services	1 medical social worker deficit	-- sq. ft. area not available <sup>a</sup> deficit capacity
Mental Health	1 mental health specialist deficit	-- sq. ft. area not available <sup>a</sup> deficit capacity
Community Health	4 community health nurses deficit	-- sq. ft. area not available <sup>a</sup>
Recreation <sup>b</sup>		

Source: Mountain West Research-North, Inc., 1982.

<sup>a</sup>Quantitative information about space (sq. ft.) is currently unavailable. See Appendix D, Table D-6 for standards used.<sup>b</sup>The number of rural recreation acres is unknown and standards are unavailable.

and two special deputies in Pryor. Further discussion about the law enforcement services provided by the Big Horn County Sheriff's Office is provided in Section 3.3.2.4.

### Fire

The Bureau of Indian Affairs Forestry Department (BI4FD) has responsibility for forest and range fire on trust lands throughout the reservation. There are six part-time firemen and four fire trucks. The equipment is housed in a 4,000 sq. ft. building. The numbers of firemen and fire trucks are inadequate for current levels of demand. Storage space is also inadequate, although the existing fire trucks and storage space are in good condition. (Jackson, personal communication, November 1982.) Table 3.4.2.5-1 presents other information on fire facilities and services.

Although the BI4FD does not have any primary responsibilities for structural fires, it does respond to structural fires when forest and range lands are endangered (Jackson, personal communication, November 1982.) Structural fire protection services are discussed in the sections on specific incorporated and unincorporated jurisdictions.

### Hospital and health services

The Indian population on the reservation is served primarily by the Indian Health Service (IHS) in Crow Agency.<sup>1</sup> The Indian population also utilizes services available at hospitals in Hardin, Billings, and Sheridan. The non-Indian population on the reservation is served by hospitals in Hardin, Billings, and Sheridan. The thirty-four bed IHS Hospital at Crow Agency, provides general inpatient hospital services.<sup>2</sup> (Jeanotte, personal communication, November 1981.) Figure 3.4.2.5-1 lists the services offered by the IHS Hospital.

The IHS Hospital has five IHS physicians who also provide clinical services through the Health Care Center in Lodge Grass and the Health Clinic in Pryor. The number of physicians and medical services that are available for the reservation are not adequate for current levels of demand. (Jeanotte, personal communication, November 1982). Table 3.4.2.5-1 presents other information for hospital and health services.

Section 3.3.2.4 describes the medical services available at the Big Horn County Memorial Hospital in Hardin.

Patients seeking more specialized services are referred to regional hospitals, primarily in Billings. Nursing home facilities and services are unavailable on the reservation. (Jeanotte, personal communication, November 1982.)

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<sup>1</sup>The IHS Hospital in Crow Agency also provides inpatient health services to the Northern Cheyenne Indian population.

<sup>2</sup>The Indian population served by the hospital in Big Horn and Rosebud counties is approximately 8,600 people (Crow plus Northern Cheyenne). Common bed-to-population standards of 3.3:1,000 (CITF) and 4:1,000 (Appendix D) indicate a current need for 28 and 34 beds, respectively. Because of the age characteristics of the population, and the relatively low economic status of many Indian residents of the service area, the higher standard (the current beds-to-1,000 population ratio is almost 4) may be appropriate, indicating capacity utilization of the facility.

FIGURE 3.4.2.5-1

Health Services  
Crow Indian Reservation

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Inpatient  
General Medicine  
Surgery  
Obstetrics-Gynecology  
Pediatrics  
Laboratory-Diagnostics

Outpatient  
General Medicine  
Dentistry  
Optometry  
Ear Clinic

Pharmacy

Community Health Services  
Social Services  
Mental Health  
Community Health

Contract Health Services

Detoxification Program

Crow Handicapped Center

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Source: Health Services Directory, Crow Indian Tribal Health Department, 1982.



The outpatient needs of the Crow Indian population are served through doctors' clinics located in Crow Agency, Lodge Grass, and Pryor. The area's non-Indian population are served by outpatient facilities in communities such as Hardin and Billings, located away from the reservation.<sup>1</sup>

Dental services are not easily obtainable in the area. There are two dentists at the IHS hospital in Crow Agency, and one dentist who practices at the Health Care Center in Lodge Grass. In Pryor, contract dental services are available on a twice-weekly basis. (Jeanotte, personal communication, November 1982.)

Daily optometry services are available at the IHS Hospital in Crow Agency, where pharmaceutical services are also available. The outpatient clinics in Lodge Grass and Pryor have eye clinic services available only on a weekly basis. The IHS hospital also provides a mobile unit for ear clinic services on the reservation.

The Crow Indian Reservation has no local emergency medical services of its own. Emergency services throughout the reservation and Big Horn County are provided through private contract. Emergency vehicles are located only in Hardin resulting in ineffective emergency services due to the long distances they must travel. Refer to Section 3.3.2.4 for further discussion about emergency services.

#### Social services

The IHS, BIA, and the Montana Department of Social and Rehabilitation Services (SRS), in conjunction with the Big Horn County Welfare Department, have primary responsibility for providing social services to the Crow Indian Reservation.<sup>2</sup> The IHS is responsible for medical social services. The BIA is responsible for general assistance and child welfare categories of social services, while the SRS provides social services that have been categorized according to economic assistance, community services, developmental disabilities, rehabilitative services, and veterans affairs. Both the IHS and BIA have regional offices in Billings and local offices in Crow Agency. A discussion of the social services program of the IHS is presented below. Information about the social services programs of the BIA was unavailable.

The IHS provides "direct patient" social services that include clinical social work and health-related social services for individuals, families, and groups. The direct patient services include inpatient and outpatient treatment programs. Figure 3.4.2.5-2 presents the social services programs of the IHS. The facilities for social services programs are located at the IHS hospital in Crow Agency, the Health Care Center in Lodge Grass, and the clinic in Pryor. Specialized medical social services are available through

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<sup>1</sup>The outpatient clinics in Crow Agency, Lodge Grass, and Pryor are operated by the Indian Health Service, a part of the U.S. Public Health Service. The clinics administer two types of programs: (1) An outpatient clinic providing general health/medical services, and (2) Contract health services (that is contractual arrangements for specialized services not available at the clinic). The outpatient clinic will serve any recognized Indian (regardless of origin) and non-Indians married to Indians. It will serve non-Indians with no tribal affiliation on an emergency basis but charges for the service. Health service through the contract program is similar except that it is available exclusively to Crow Indians who live on or near the reservation.

<sup>2</sup>Other governmental agencies provide resources for services such as the Head Start; women, Infants, and Children (WIC); and the Comprehensive Employment and Training Act (CETA) programs. The facilities and services sections of this report do not present detailed discussions about existing programs and needs for the comprehensive set of social services programs that operate throughout the reservation. Refer to the Crow Socioeconomic Report (AITS 1983) for discussion of existing and future needs affecting programs such as Head Start, WIC, and CETA.

FIGURE 3.4.2.5-2

Social Services Programs  
Crow Indian Reservation

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Emergency Services

Inpatient

Outpatient

Community Level

Adult and Child Services

Elderly

Family Planning

Alcohol/Drug Abuse

Learning Problems and Disabilities

Child Abuse and Neglect

Juvenile Delinquency

Adoption and Foster Care

Employees Assistance

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Source: U.S. Department of Health and Human Services, Public Health Service, Health Services Administration, Indian Health Service, Billings Area Office, November 1982.

the facilities and staff of the IHS's Billings Area Office. Quantitative information about the amount of space (sq. ft.) for social services is currently unavailable. IHS provides one medical social worker for the social services programs. The facilities and the numbers of professional staff that are currently available to provide social services on the reservation are inadequate for identified needs and current levels of demand. (Naugle, personal communication, November 1982.)

Refer to Section 3.4.2.3 for further detailed discussion about existing and future social services needs and programs for the Crow Indian Reservation.

#### Mental health

Mental health care for the population on the Crow Indian Reservation is provided by the IHS. Mental health services include emergency and crisis services, inpatient and outpatient services, community education, and interagency consultation. Figure 3.4.2.5-3 itemizes the mental health programs of the IHS. The facilities for mental health programs are located at the IHS hospital in Crow Agency and the Health Care Center in Lodge Grass. Quantitative information about the amount of space (sq. ft.) for mental health is currently unavailable. Specialized mental health services are available through the facilities and staff of the IHS's Billings Area Office. The IHS mental health services provide two professional personnel: one mental health specialist and one mental health technician. The facilities and numbers of professional staff that are currently available for mental health needs on the Crow Indian Reservation are inadequate for identified needs and current levels of demand. (Tower, personal communication, November 1982.)

#### Community health

Community health services for the population on the reservation are provided by the IHS. Community health services include maternal child health, communicable disease control, adult health, and child health. Figure 3.4.2.5-4 presents the community health programs of the IHS. The facilities for community health programs are located at the IHS Hospital in Crow Agency and the Health Care Center in Lodge Grass. Quantitative information about the amount of space (sq. ft.) for community health is currently unavailable. The IHS community health services provide four community health nurses. The facilities and numbers of professional staff that are currently available for community health needs on the Crow Reservation are inadequate for identified needs and current levels of demand. (Sterling, personal communication, November 1982.)

#### Recreation

Aside from a limited number of state and federal areas of both historic and recreational value which are open to the public and offer opportunities for both tribal members and non-Indians alike, opportunities for public recreation on the reservation are limited. Big Horn County controls no public recreation areas within the reservation. Because non-Crows are restricted from access to reservation land, recreational use is severely limited to enrolled members of the Crow Tribe and to fee owners on their respective properties. (Crow/Shell Coal Lease DEIS 1981.) Table 3.4.2.5-2 lists these public areas with their major uses, and also lists the area owned by the tribe.

Popular types of recreation activities on the rural recreation lands of the reservation include hunting, fishing, horseback riding, snowmobiling, and off-road vehicle riding (Crow/Shell Coal Lease DEIS 1981.) Because visitor use data are not collected on the reservation (with the exception of the Custer Battlefield National Monument), existing use rates by activity and by site are not available.

FIGURE 3.4.2.5-3

Mental Health Programs  
Crow Indian Reservation

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Individual Therapy  
Network and Social Therapy  
Group Therapy  
Family and Marital Counseling  
Parent Education  
Crisis Intervention  
Psychopharmacologic Therapy

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Source: U.S. Department of Health and Human Services Public Health Service, Health Services Administration, Indian Health Service, Billings Area Office, November 1982.

TABLE 3.4.2.5-4

Community Health Programs  
Crow Indian Reservation

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Maternal Child Health
Prenatal Care
Postpartal Care
Newborn and Well Child Care
Handicapped Child Care
Abused or Neglected Child Care
Communicable Disease Control
Tuberculosis
Hepatitis
Venereal Disease
Gastroenteritis
Adult Health
General Health Services to Elderly
Diabetes Care
School Health
Screening
Consultation
Education

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Source: U.S. Department of Health and Human Services, Public Health Service, Health Services Administration, Indian Health Service, Billings Area Office, November 1982.

TABLE 3.4.2.5-2  
Official Recreation Areas  
Crow Indian Reservation

Site	Ownership	Acreage	Use
Arapooish Fishing access Site	MDFWP	93	Fishing
Bighorn Canyon National Recreation Area	NPS	120,284	Fishing, Boating, Interpretive
Bighorn Fishing Access Site	MDFWP	78	Fishing
Chief Plenty Coups State Monument	MDFWP	195	Fishing, Interpretive
Custer Battlefield Nat'l Monument	NPS	755	Historic, Interpretive
Rosebud Battlefield	MDFWP	5,000	Hunting, Interpretive
Two Leggins Fishing Access Site	MDFWP	30	Fishing
Willow Creek	BIA-Crow	600	Fishing, Boating

Source: Mountain West Research-North, Inc., 1983.

Note: MDFWP = Montana Department of Fish, Wildlife, and Parks; NPS = National Park Service; BIA = Bureau of Indian Affairs.

A recent exception to the prohibition of non-Indian recreation on the reservation occurred with the 1981 U.S. Supreme Court ruling which gave both Indian and non-Indian a right of access to the waters and fisheries of the Bighorn River. This allows an increase in non-Indian fishing of the river and sparked concern by members of the Crow tribe. From 1974 to 1981, non-Indian access to the river had been prohibited by court order. (Berntsen, personal communication, November 1982.) This controversial situation is exacerbated by the fact that the river's quality of fishery is excellent (record-size trout have been caught since the 1981 opening), and non-Indian demand for access has increased dramatically.<sup>1</sup>

Hunting is also prevalent on reservation lands. The big game, nongame, and upland game species include mule deer, limited numbers of white-tailed deer, antelope, black bear, elk, buffalo, coyote, sharp-tailed and sage grouse, pheasant, and other upland game birds. (Butz, personal communication, November 1982.) Because hunting on reservation lands is restricted to enrolled tribal members and because no licenses are required nor game stations set up, harvest numbers are unavailable, and the actual number of hunters and hunting days is unknown. Table 3.4.2.5-3 lists the approximate number of animals which are assumed to populate the reservation. These data are based on a study conducted in 1979-80.

#### 3.4.2.6 Fiscal

##### Crow Tribe Financial Profile

Tribal expenditures consist of two types:

- 1) Discretionary expenditures that are determined and approved on an annual basis by the Crow Tribal Council and are necessary for the normal operation of the tribal government.
- 2) Nondiscretionary, expenditures that are mandated by tribal law, resolution, or policy and must be made each year.

The budgeted expenditures for FY 1983 are presented in Table 3.4.2.6-1. Of the annual \$6.475 million expenditures budgeted, 21.7 percent are discretionary and 78.3 percent are nondiscretionary.

Thirty percent of the discretionary tribal budget (\$1.404 million) is for programs and projects undertaken by the Crow tribe. This category includes money spent on sewer and water service, land purchases, tribal court, and the Crow Fair. An additional 30 percent is allocated for salaries and expenses of the tribal administrators and staff, and 12.5 percent is designated for tribal attorneys and litigation expenses.

The nondiscretionary budgeted expenditures were \$5.07 million for FY 1983. Federal contracts and grants account for \$2.356 million, or 46.5 percent of the total. The \$2.356 million budgeted this year is significantly less than the \$10 million that has been available in past years (Loomis, personal communication, November 1982). Dividends and land purchases combined account for an additional 44.1 percent of the nondiscretionary budget. The money used for these functions comes directly to the tribe from coal royalty payments made by Westmoreland Resources. Tribal mandate specifies that 60 percent of the royalty payments must go for dividends and 20 percent must go to land purchases. The remaining 20 percent is used for tribal administration.

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<sup>1</sup>The 1978 State Comprehensive Outdoor Recreation Plan projects that the carrying capacity of trout streams within Fisheries Region 5 (portions of Wheatland, Musselshell, Sweetgrass, Stillwater, Carbon, Yellowstone, Big Horn, and Golden Valley counties) would be exceeded beyond 1985 and earlier on streams of particular popularity such as the Bighorn River (Montana Department of Fish and Game 1978.) This increasing demand indicates even greater fishing pressure on this river in years to come.

TABLE 3.4.2.5-3

Big Game Species Populations and Harvest on the Reservation  
Crow Indian Reservation  
1979-1980

Species	Population	Approximate Annual Harvest
Mule Deer	2,000	Unknown <sup>a</sup>
White-tailed Deer	200-300	Unknown
Elk	2,000	400-500
Antelope	300-400	Unknown
Bighorn Sheep	7	0
Buffalo	300	30-50 <sup>b</sup>
Black Bear	Unknown	10-15

Source: Dorman Butz, Bureau of Indian Affairs, personal communication, November 1982.

<sup>a</sup>Harvest approximately equal to the annual production.

<sup>b</sup>Hunted by permit only.



TABLE 3.4.2.6-1  
Budgeted FY 1983 Expenditures  
Crow Tribe  
(1982 dollars)

Category	Expenditure	Total Expenditure
Tribal Staff	\$285,937	
Staff Travel	49,000	
Tribal Committee	20,500	
Buffalo Manager	18,588	
Employee Benefits	52,000	
Attorney Litigation	175,000	
Insurance	30,000	
Tribal Projects	428,000	
Operating Expense	84,731	
Janitor	8,000	
Utilities	100,000	
Major Repairs	25,000	
Capital Equipment	20,000	
Welfare and Burial	107,500	
Total Discretionary		\$1,404,256
Education	50,000	
Per Capita Payments	1,649,177	
Land Purchase	586,127	
Crow Land Enterprise	60,000	
Crow Central Education	23,500	
Federal Contracts and Grants	2,355,701	
Revolving Credit	113,775	
FHA Account	231,775	
Total Nondiscretionary		5,070,055
Total Expenditures		\$6,474,811

Source: Mountain West Research-North, Inc.; Crow Tribal Resolution 83-4, FY 1983 Budget.

## Revenues

Table 3.4.2.6-2 presents anticipated total revenues for FY 1983. Approximately 45.2 percent of the projected revenues come from a U.S. Treasury fund which contains money earned directly by the Crow Tribe. Oil, gas, and coal leases and royalties account for \$2.9 million, or 92 percent, of the Crow tribal income (U.S. Treasury). Direct contracts and grants account for \$2.356 million, or 38.8 percent, of the total income, significantly below most previous years' income of about \$10 million. Beginning year balances in the U.S. Treasury and cash carry-over account for \$1.1 million, or 16 percent, of total income.

## Bonding Capacity and Debt Service

The Crow tribal government does not tax its people on the reservation. It has no real means of funding capital improvements through bonding. Most of the major capital improvements that are made on the reservation come from direct contracts or grants from the federal government.

The tribe does not have firm plans to finance debt accrued by the tribe. The Crow tribe has an outstanding debt of \$2.4 million in FY 1983.<sup>1</sup> Tribal resolution 83-4, which is the current budget, states that this debt will be retired by using 50 percent of future bonus payments received by the tribe. There is no schedule for future bonus payments so the debt retirement schedule is uncertain.

## Indian Health Service

Table 3.4.2.6-3 gives a summary of the financial data for the Indian Health Service (IHS) on the Crow Reservation for the period 1978 to 1981. This section describes the expenditure trends for the IHS.

The total IHS expenditures grew 63.9 percent during the period, from \$3.545 million in 1978 to \$5.811 million in 1982. This was an average annual increase of 3.2 percent.

Although the program budget during that period increased 60.7 percent to \$5.592 million in 1982, its share of the total spending decreased over the period. In 1978, the program budget accounted for 98.2 percent of the total; by 1982 it had decreased its share to 96.2 percent. The hospital/clinic budget constituted the largest share of the program budget, accounting for 49.3 percent in 1978 and 50.9 percent in 1982. The hospital/clinic budget increased 66.1 percent over the period to \$2.848 million in 1982. Contract health care increased 50.2 percent to \$1.704 million in 1982, an average annual increase of 10.7 percent. The budget for the public health nurse increased by 249.3 percent to \$94,300 in 1982.

The facilities budget increased 237.4 percent over the period, from \$65,000 in 1978 to \$219,300 in 1982. This total increase can be attributed to additional spending on sanitation facilities. Outpatient facility spending occurred only in the 1980 and 1981 fiscal years.

All IHS funding comes from a variety of federal government sources. The exact breakdown of the funding sources is not available. Since IHS revenues are not significantly affected by local conditions, a revenue analysis for the agency was not included in the study.

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<sup>1</sup>This debt has been substantially reduced during the past fiscal year (Billings Gazette 1983).

TABLE 3.4.2.6-2  
Budgeted FY 1983 Revenues  
Crow Tribe  
(1982 dollars)

Source	Income	Total Income
Interest (U.S. Treasury)	\$5,000	
Interest (IIM) <sup>a</sup>	26,000	
Interest (time deposit)	79,500	
Interest (Bureau)	9,100	
Grazing Leases	85,000	
Land Leases	45,000	
Oil and Gas Leases	400,000	
Royalties, Oil and Gas	150,000	
Royalties, Coal	2,350,000	
Fines	250	
Damage Payments	500	
Total U.S. Treasury	3,150,350	\$3,150,350
Total Federal Contracts and Grants	2,355,701	2,355,701
Total Revolving Credit	113,775	113,775
Total FHA Reserve	231,775	231,775
Total Carry-over and Beginning Year U.S. Treasury	1,112,209	1,112,209
Total Income		\$6,963,810

Source: Mountain West Research-North, Inc.; Crow Tribal Resolution 83-4, FY 1983 Budget.

<sup>a</sup>IIM = Individual Indian Money.

TABLE 3.4.2.6-3

Indian Health Service Expenditures  
Crow Indian Reservation  
FY 1978-1982  
(\$000)

Expenditures	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982	Total Change (percent)	Average Annual Change (percent)
<b>Programs</b>							
Hospital and Clinics	1,715.3	1,948.6	2,153.2	2,621.4	2,848.4	66.1	13.5
Dental	166.8	176.5	158.6	217.3	275.4	65.1	13.4
Mental Health	46.9	26.1	55.4	46.8	50.2	7.0	1.7
Alcoholism	-	-	-	-	101.9	NA	NA
Maintenance and Repair	41.5	29.0	46.9	79.0	43.1	3.9	1.0
Contract Health Care	1,134.6	1,313.8	1,414.6	1,467.4	1,704.4	50.2	10.7
Sanitation	39.9	61.1	67.3	58.4	79.3	98.7	18.7
Public Health Nursing	27.0	73.8	62.7	74.4	94.3	249.3	36.7
Health Education	21.7	23.4	22.9	17.5	21.2	-2.3	-0.6
Community Health Rep.	231.0	277.0	320.1	324.1	278.2	20.4	4.8
PL 638 Tribal	30.2	34.1	-	-	-	-100	NA
Tribal Health Support	25.0	8.6	115.6	-	4.3	-82.8	-35.6
Medicare-Medicaid	-	-	-	143.0	91.1	NA	NA
<b>Total Programs</b>	<b>3,479.9</b>	<b>3,972.0</b>	<b>4,417.3</b>	<b>5,049.3</b>	<b>5,591.8</b>	<b>60.7</b>	<b>12.6</b>

TABLE 3.4.2.6-3 (cont.)

Indian Health Service Expenditures  
Crow Indian Reservation  
FY 1978-1982  
(\$000)

Expenditures	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982	Total Change (percent)	Average Annual Change (percent)
<u>Facilities</u>							
Sanitation	65.0	37.4	93.0	210.0	219.3	237.4	35.5
Outpatient	-	-	1,300.0	185.0	-	NA	NA
Total Facilities	65.0	37.4	1,393.0	395.0	219.3	237.4	35.5
Total Expenditure	3,544.9	4,009.4	5,810.3	5,444.3	5,811.1	63.9	13.2

Source: J. R. Smith, Director Billings Area Office, Indian Health Service, personal communication, November 1982.

Note: NA = not available.

### 3.4.3 Crow Agency and Northeast Area

#### 3.4.3.1 General Description

The Crow Agency and northeast area includes the part of the Crow Reservation that is east of Interstate 90 and north of U.S. Highway 212. It also includes the Reno and Davis Creek drainages immediately south of route 212. This section describes the existing environment of Crow Agency and the northeast area. Section 3.4.3.2 describes the area's population and economy. Section 3.4.3.3 describes social life and cultural diversity in the area. Section 3.4.3.4 presents the housing inventory for the area. Facilities/services and fiscal conditions are described in sections 3.4.3.5 and 3.4.3.6, respectively.

#### 3.4.3.2 Crow Agency and NE Area

##### Population and economy

In the 1980 census, the population of Crow Agency and the northeast area was about 2,100 people, 37 percent of the total population of the reservation. Crow Agency is the major population and economic center of the northeast area and is the major political center of the reservation. It is also the site of the Indian Health Service hospital. The employment characteristics of the area's residents reflect this governmental role (see Table 3.4.3.2-1). Over 36 percent of the residents who were employed held jobs in the government sector, a proportion exceeded only by the service sector which employed 37.6 percent. Mining sector jobs also provided an important source of employment for area residents, accounting for 12.4 percent of the total. Trade (7.5 percent) and agriculture (4.2) were the other important sectors. None of the area residents were employed in either manufacturing or finance, insurance, real estate (FIRE). Overall, 1980 census figures show that 27.1 percent of all area residents were employed.

#### 3.4.3.3 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

#### 3.4.3.4 Housing

Table 3.4.3.4-1 presents the housing unit count that will be used to make housing forecasts for the Crow NE and Crow Agency Area. As shown in the Table, 448 units or 74 percent of the total units are assumed to be Indian households. The remaining 159 units or 26 percent are non-Indian households. Of the 607 total units, 84 percent are single-family detached, 7 percent are multifamily units, and the remaining 9 percent are mobile homes.

#### 3.4.3.5 Facilities and Services

##### Crow Agency

In the unincorporated community of Crow Agency many services are provided through governmental entities that have jurisdictional authority throughout the reservation. Other services are provided through local organizations, as discussed below.

TABLE 3.4.3.2-1

Employment by Industry by Place of Residence  
Crow Reservation Northeast  
1980

Industry	Crow Reservation NE		Big Horn County		Percent of Sector
	Number	Percent	Number	Percent	
Ag, Forestry and Fisheries	24	4.2	680	17.1	3.5
Mining	71	12.4	292	7.3	24.3
Construction	11	1.9	219	5.5	5.0
Manufacturing	0	0.0	43	1.0	0.0
TCPU <sup>a</sup>	0	0.0	139	3.5	0.0
Wholesale & Retail Trade	43	7.5	589	14.8	7.3
FIRE <sup>a</sup>	0	0.0	113	2.8	0.0
Services	214	37.6	1,274	32.1	16.8
Government	206	36.2	613	15.4	33.6
TOTAL EMPLOYMENT	569	100.0	3,962	100.0	14.3

Source: U.S. Department of Commerce, Bureau of Census, 1980.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

TABLE 3.4.3.4-1  
 Year-round Housing Units by Type  
 Crow Northeast  
 1980

Type of Unit	Indian	Non-Indian	Total
Single-family detached	378	134	512
Multifamily	30	11	41
Mobile home	40	14	54
TOTAL	448	159	607

Source: Mountain West Research-North, Inc., 1982.



The public facilities and services in Crow Agency that are included in the discussion are fire, water, and sewer. Other public facilities and services are provided by Big Horn County, for which discussions are presented in Section 3.3.2.4. These services are summarized in Table 3.4.3.5-1.

Crow Agency is the location for the Indian Health Service hospital, the headquarters of the Bureau of Indian Affairs Crow Indian Agency, and the headquarters of the Crow Indian Tribal Government. The capacities of the water and sewer systems at Crow Agency are correspondingly large to accommodate the daily demands presented by the operations of the three organizations.

Section 3.4.2.5 discusses the services provided by governmental authorities with jurisdictional authority for the reservation.

#### Fire

The Crow Agency Volunteer Fire Department services the immediate Crow Agency area for structural fires by operating with ten volunteer firemen and one large fire truck. The equipment is housed in space provided by the Bureau of Indian Affairs. The personnel, fire equipment, and storage space are adequate for current needs. (Singer, personal communication, November 1982.)

#### Water

Crow Agency obtains its water from the Little Bighorn River. There are two water treatment plants, with a total production capacity of 625 gallons per minute, that are operated by the Bureau of Indian Affairs. Information about the rate of current usage is unavailable. The storage capacity of the water supply system is 1,500,000 gallons. The water distribution system is in good condition, with normal maintenance and routine replacement of lines. The water treatment, water storage, and water distribution system have adequate capacity to meet current levels of demand. (Singer, personal communication, November 1982.)

#### Sewer

The Bureau of Indian Affairs operates three sewer lagoons, totaling seventeen acres. Quantitative information about the treatment capacity and rates of current usage are unavailable. Presently, the sewer system is in good condition, with normal maintenance and routine replacement of lines. The sewer lagoons and collection system have adequate capacity for current levels of demand. (Singer, personal communication, November 1982.)

A sanitary sewerage treatment plant, which is owned by the Crow Indian Tribal Government and was intended to serve an industrial development project, is currently not in operation.

#### Recreation

The recreation facilities in Crow Agency are provided by three city parks, the school gymnasium and playground areas, and the Crow Tribal Fairgrounds. The city parks contain a total of 40 acres and provide picnic facilities in an open-space park setting. Indoor school and church facilities are regularly open for recreation on a supervised basis, while the Tribal Fairgrounds are utilized most heavily during the annual Crow Fair held each summer. There are no recreation programs supported by the tribe, although a limited number of organized associations (such as Little League and Little Guys baseball) are tribe sponsored and sanctioned. (Mountain West Research, Inc. 1976.)

TABLE 3.4.3.5-1

Status of Existing Personnel, Capital Facilities, and Equipment  
Crow Agency (unincorporated)

Services	Personnel	Capital Facilities and Equipment
Fire	10 volunteer fireman	-- sq. ft. not available <sup>a</sup> -- 1 fire truck <sup>b</sup> -- 1 - 1,000 gallon tank -- 500 gpm pump adequate capacity
Water <sup>c</sup>	personnel not available	-- 400 gpm -- 225 gpm adequate capacity -- 1,500,000 gallons adequate capacity -- distribution capacity not available <sup>a</sup> adequate capacity
Treatment/Production Treatment/Production Storage Capacity Distribution Capacity		
Sewer <sup>d</sup>	personnel not available	-- 3 sewerage lagoons 1 - 6 acres 1 - 5 acres 1 - 6 acres adequate capacity
Treatment Capacity		

TABLE 3.4.3.5-1 (cont.)

Status of Existing Personnel, Capital Facilities, and Equipment  
Crow Agency (unincorporated)

Services	Personnel	Capital Facilities and Equipment
Sewer (cont.) Treatment Plant (not in operation)		-- 600,000 gpd
Collection Capacity Recreation <sup>d</sup>		-- collection capacity not available <sup>a</sup>

Source: Mountain West Research-North, Inc., 1981.

<sup>a</sup>Quantitative information about space (sq. ft.) is currently unavailable. Existing space is assumed to be consistent with appropriate standards.<sup>b</sup>In the analyses of impacts, fire trucks are assumed to be designed for structural fire protection.<sup>c</sup>Quantitative information about the capacity of the water distribution system is unavailable. Capacity is assumed to be consistent with appropriate standards. See Appendix D, Table D-6.<sup>d</sup>The total number of rural recreation acres for tribal members is unknown, and standards for rural recreation acres on reservation lands are not available. Increases in recreation use are forecast in the text.

At present, the tribe has no recreation staff, and funds for future park development and program development are undetermined. The existing facilities and acreage are considered to be adequate.

#### 3.4.3.6 Fiscal

Because there are no jurisdictional units within the northeast area with taxing authority or fiscal responsibilities, no fiscal discussion is appropriate here.

### 3.4.4 Lodge Grass and Southeast Area

#### 3.4.4.1 General Description

The Lodge Grass and southeast area includes the part of the Crow Reservation located in and around Lodge Grass and extending southward to Wyola and the Wyoming state line. This section describes the existing environment of Lodge Grass and the southeast area. Section 3.4.4.2 describes the area's population and economy. Section 3.4.4.3 references a description of social life and cultural diversity in the area. Section 3.4.4.4 presents the area's housing inventory. Facilities/services and fiscal conditions are described in sections 3.4.4.5 and 3.4.4.6, respectively.

#### 3.4.4.2 Lodge Grass

##### Population and economy

Lodge Grass and Wyola, both located along I-90, are the major population centers of the southeast area of the reservation. The 1980 census population for this area was 2,136 people, 38 percent of the total reservation population. Lodge Grass is an incorporated community with a population almost as large as that of Crow Agency, but its economy is limited to a small commercial sector comprised of two grocery stores, an older hotel, a small cafe, and four gas stations. Wyola is much smaller and its economy more limited. Commercial establishments in Wyola consist of a small grocery store and a gas station. Of the residents of the area who were employed, 39.1 percent held service sector jobs and 21.7 percent were in government positions. Reflecting the agricultural base of the area, 26.1 percent of those employed were working in the agricultural sector. Many of these residents worked outside the area, frequently in Crow Agency. (See Table 3.4.4.2-1.) Census figures indicate that 25.2 percent of area residents were employed.

#### 3.4.4.3 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

#### 3.4.4.4 Housing

Table 3.4.4.4-1 presents the housing count that will be used to make housing forecasts for the Lodge Grass and southeast area. As shown in the table, 462 units or 63 percent of the total units are assumed to be Indian households. The remaining 267 units or 37 percent are non-Indian households. Of the 729 total units, 75 percent are single-family detached, 14 percent are multifamily units, and the remaining 11 percent are mobile homes.

TABLE 3.4.4.2-1

Employment by Industry by Place of Residence  
Lodge Grass and Southeast Area  
1980

Industry	Crow Reservation SE		Big Horn County		Percent of Sector
	Number	Percent	Number	Percent	
Ag., Forestry and Fisheries	141	26.1	680	17.1	20.7
Mining	5	0.9	292	7.3	1.7
Construction	16	2.9	219	5.5	7.3
Manufacturing	0	0.0	43	1.0	0.0
TCPU <sup>a</sup>	21	3.9	139	3.5	15.1
Wholesale & Retail Trade	28	5.2	589	14.8	4.7
FIRE <sup>a</sup>	0	0.0	113	2.8	0.0
Services	211	39.1	1,274	32.1	16.5
Government	117	21.7	613	15.4	19.1
TOTAL EMPLOYMENT	539	100.0	3,962	100.0	13.6

Source: U.S. Department of Commerce, Bureau of Census, 1980.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

TABLE 3.4.4.4-1

Year-round Housing Units by Type  
Lodge Grass and Southeast Area  
1980

Type of Unit	Indian	Non-Indian	Total
Single-family detached	344	205	549
Multifamily	67	37	104
Mobile home	51	25	76
TOTAL	462	267	729

Source: Mountain West Research-North, Inc., 1982.

### 3.4.4.5 Facilities and Services

#### City of Lodge Grass

The public facilities and services operated in Lodge Grass include the following:

- General government
- Police
- Fire
- Health and welfare
- PUBLIC works
- Streets
- Water
- Sewer
- Solid Waste
- Recreation
- Library

Table 3.4.4.5-1 summarizes this information.

General government. General government in Lodge Grass consists of the office of the city clerk, which operates with a staff of one person. The general government staff for the city is considered adequate at this time. Lodge Grass operates with a system of elected officials that includes a mayor and a four-member city council. (Lix, personal communication, November 1982.) The FY 1983 budget for general government is \$14,200 (City of Lodge Grass 1982).

The offices for general government are located in the Lodge Grass municipal building. The municipal building, which was constructed in 1978, currently houses the offices of the mayor and city clerk. The municipal building has a total area of approximately 7,000 sq. ft., of which 1,200 sq. ft. are utilized for general government. The chamber rooms for meetings of the city council and municipal court are also located in the municipal building. The offices and garage space for the municipal police department, municipal public works department, and the Lodge Grass Volunteer Fire Department are located in the municipal building. A renovation project, due for completion by the end of 1982, is to include a municipal jail facility and an office for a deputy from the Big Horn County Sheriff's Office and also provide space for a child day-care center and senior citizens' activities. The facilities and space in the Lodge Grass Municipal Building are considered to be adequate for current and expected future needs. (Lix, personal communication, November 1982.)

Police. The Lodge Grass Police Department (LGPLD) operates as a municipal law enforcement agency. LGPLD headquarters are located in the Lodge Grass municipal building. The department staff, consisting of one sworn officer, is considered inadequate to meet the current levels of demand for services because it is unable to provide continuous patrols throughout the city. The LGPLD operates one patrol vehicle which is considered adequate at the current staffing levels. (Lix, personal communication, November 1982.) The current budget for public safety is \$23,500 (City of Lodge Grass 1982).

The office space and detention facility for the LGPLD are located in the Lodge Grass municipal building. A renovation project, to be operational in 1983, will provide modern office and detention facilities. With two detention cells, six inmate beds, and 1,300 sq. ft. of space, the LGPLD office and detention facility have surplus capacity. (Lix, personal communication, November 1982.)

TABLE 3.4.4.5-1

Status of Existing Personnel, Capital Facilities, and Equipment  
City of Lodge Grass

Services	Personnel	Capital Facilities and Equipment
General Government	1 professional staff adequate	-- 1,200 sq. ft. surplus capacity
Police	1 police officer deficit	-- 1,300 sq. ft. surplus capacity -- 4 detention cells -- 6 inmate beds surplus capacity -- 1 patrol vehicle adequate capacity
Fire	10 volunteer firemen adequate	-- 2,300 sq. ft. surplus capacity -- 3 fire trucks <sup>a</sup> 1 - 750 gallon tank, 1,000 gpm pump (owned by city of Lodge Grass) 1 - 1,250 gallon tank, 500 gpm pump (owned by Big Horn County) 1 - 25 gallon tank, unspecified gpm pump (owned by State of Montana) surplus capacity
Shop	2 staff adequate	1,300 sq. ft. surplus capacity
Water Treatment/Production	refer to public works, shop personnel	-- 2 water wells 1-110 gpm 1-80 gpm surplus capacity



TABLE 3.4.4.5-1 (cont.)

Status of Existing Personnel, Capital Facilities, and Equipment  
City of Lodge Grass

Services	Personnel	Capital Facilities and Equipment
Storage Capacity	refer to public works, shop personnel	-- 180,000 gallons surplus capacity
Distribution Capacity	refer to public works, shop personnel	-- distribution capacity not available <sup>b</sup> surplus capacity
Sewer Treatment	refer to public works, shop personnel	-- 2 sewer lagoons 1 - 6 acres 1 - 6 acres surplus capacity
Collection Capacity	refer to public works, shop personnel	-- collection capacity not available <sup>b</sup> surplus capacity
Solid Waste	refer to public works, shop personnel	-- 10 acres landfill site adequate capacity
		-- 1 collection truck - 16 yard capacity surplus capacity
Recreation and Culture Recreation	refer to public works, shop personnel	-- 1 neighborhood park 3 acres adequate capacity
		-- other recreation deficit capacity

Source: Mountain West Research-North, Inc., 1982.

<sup>a</sup>Fire trucks are assumed to be designed for structural fire protection.

<sup>b</sup>Quantitative information about the capacities for the water collection systems is unavailable. Capacities are assumed to be consistent with appropriate standards. See Appendix D, Table D-6.

The Big Horn County Sheriff's Office (BHCSO) stations one deputy in the Lodge Grass area, who by the end of 1982, will have office space in the Lodge Grass municipal building (Lix, personal communication, November 1982). Law enforcement services provided by the BHCSO are described in Section 3.3.2.4.

The LGPD operates subject to the terms of a mutual agreement for cooperation with the Bureau of Indian Affairs Police Department (BIAPD), which has its headquarters in Crow Agency. The mutual agreement specifies the division of jurisdictional authority between the LGPD and BIAPD pertaining to arrest and detention of both Indians and non-Indians within the municipal boundaries of Lodge Grass. Two BIAPD patrolmen, who use their personal residences as their base of operations, are stationed in the Lodge Grass area. (Parisian, personal communication, November 1982.) The Montana State Highway Patrol (MSHP) patrols state and federal highways located throughout the reservation. Section 3.4.2.5 provides further description of the law enforcement services provided by the BIAPD and the MSHP throughout the area of the Crow Indian Reservation.

**Fire.** The Lodge Grass Volunteer Department, which has ten volunteer firemen and three fire trucks, responds to calls within the city limits.

Lodge Grass, Big Horn County, and the state each own one of the three fire trucks. The truck owned by Lodge Grass is designed for structural fires, while the other two, on loan from Big Horn County and the state, are primarily designed for range and grass fires, but are also used for structural fires.

The number of fire trucks represents a surplus capacity for the existing level of demand. Approximately 2,300 sq. ft. of space in the Lodge Grass municipal building is used to store the fire trucks. The number of volunteer firemen and fire truck storage space are adequate for current needs. (Lix, personal communication, November 1982.)

**Health and welfare.** Health and welfare services, including hospital and health services, mental health, public health, environmental health, and social services, are provided for the Indian and non-Indian residents of Lodge Grass and vicinity through offices and agencies of the Indian Health Service, Bureau of Indian Affairs, Big Horn County, and the state. Refer to Sections 3.3.2.4 and 3.4.2.5 for the discussions about the health and welfare services throughout the reservation.

**Public works.** The Lodge Grass shop, which is in good condition, has approximately 1,300 sq. ft. of space. The two-person public works staff operates and maintains municipal buildings, streets, water and sewerage systems, solid waste disposal, and recreation facilities. Although some shop equipment is outdated, the shop space, staff, and equipment have adequate capacity to meet current and expected future needs. (Lix, personal communication, November 1982.) Table 3.4.4.5-1 presents other information on shop facilities and services.

**Streets.** The city of Lodge Grass has approximately three and one-half miles of residential streets, of which approximately 50 percent (i.e., 1.75 miles) are paved. The maintenance and repair of existing streets, together with the paving of new streets, will be of major importance for the community's capability to accommodate an increased population. (Lix, personal communication, November 1982.) The highway and street budget for FY 1983 is \$1,000 (City of Lodge Grass 1982.)

**Water.** Lodge Grass obtains its water from two water wells. Treatment consists of chlorination. The water supply system, which currently serves approximately 900 persons, has a production capacity of 190 gallons per minute and a storage capacity of 180,000 gallons. Quantitative information about the rate of

current usage is unavailable. The water distribution system is in good condition, with normal maintenance and routine replacement of lines. Upon the completion of an improvement project in 1983, the entire distribution system will have been replaced since 1976. The water production, water storage and water distribution systems have surplus capacity for current and expected future levels of demand. (Lix, personal communication, November 1982). The FY 1983 budget for the Lodge Grass water system is \$22,000. (City of Lodge Grass 1982.)

Sewer. Lodge Grass operates two sanitary sewerage lagoons with a total area of twelve acres. The original lagoon was constructed in 1956, with a newer lagoon installed in 1972. The sewerage system, which currently serves approximately 900 persons, is in good condition; it receives normal maintenance and routine replacement of old lines. Quantitative information about the treatment capacity and the current rates of usage is unavailable. The sewerage lagoons and collection system have surplus capacity for current and expected future levels of demand. (Lix, personal communication, November 1982.) Lodge Grass has budgeted \$11,400 for the sanitary sewer system for FY 1983 (City of Lodge Grass 1982).

Solid waste. Lodge Grass currently collects and hauls its garbage to a municipal landfill site of approximately ten acres. The city public works department uses one 1980 model, sixteen-cubic-yard, rear-end-loading compactor for disposal purposes. The personnel and collection vehicle are considered adequate for current needs although the site is nearing its capacity. Beginning in 1983, the city plans to close the landfill site and, instead, use a dumpster site that will be provided near the community by Big Horn County. (Lix, personal communication, November 1982.) Big Horn County will then remove the garbage to the county landfill site near Hardin. The garbage collection/solid waste budget for the current fiscal year is \$14,600 (City of Lodge Grass 1982).

Recreation. Recreation facilities in Lodge Grass consist of a three-acre city park. The park, located next to the school grounds, has picnic facilities and landscaped open space. Playground equipment, basketball courts, a football field, and a softball field are available on the premises of the schools in Lodge Grass. The currently available recreation facilities are considered inadequate for current levels of demand; however, there are no plans for development of additional facilities. (Lix, personal communication, November 1982.) The community has budgeted \$150 for culture and recreation for FY 1983 (City of Lodge Grass 1982).

Library. Library services in Lodge Grass are available on a weekly basis through the Big Horn County "bookmobile" (Lix, personal communication, November 1982). Refer to Section 3.3.2.4 for discussion of library services throughout the Crow Indian Reservation.

#### Wyola (unincorporated)

In the unincorporated community of Wyola, many services are provided by the county or through governmental entities that have jurisdictional authority throughout the reservation (see Section 3.3.2.4). Other services are provided through local organizations as discussed below.

The public facilities and services in Wyola discussed in this section include fire, water, and sewer. Table 3.4.4.5-2 summarizes these facilities and services.

TABLE 3.4.4.5-2

Status of Existing Personnel, Capital Facilities, and Equipment  
Wyola (unincorporated)

Services	Personnel	Capital Facilities and Equipment
Fire <sup>a</sup>	personnel not applicable	-- no fire trucks deficit capacity
Water <sup>b</sup>		
Treatment/Production	personnel not applicable	-- 1 - treatment/production capacity not available <sup>a</sup> surplus capacity
Storage		-- 33,000 gallons deficit capacity
Distribution Capacity		-- distribution capacity not available <sup>a</sup> deficit capacity
Sewer <sup>b</sup>	personnel not applicable	-- individual septic tank systems deficit capacity

Source: Mountain West Research-North, Inc., 1982.

<sup>a</sup>Fire trucks are assumed to be designed for structural fire protection.<sup>b</sup>Quantitative information about the capacities for treatment and distribution systems is unavailable. Capacities are assumed to be consistent with appropriate standards. See Appendix D, Table 6-0.

Fire. There is no fire truck stationed in Wyola. Instead, fire protection is provided by Big Horn County with fire trucks stationed in Lodge Grass and Hardin. There is a need for a local fire truck in Wyola. (Mullins, personal communication, November 1982.)

Water. Wyola obtains its water from one water well. Although quantitative information about the capacity for production and the rate of current usage is unavailable, the water well has surplus capacity for the current levels of demand. The storage capacity of the water supply system is 33,000 gallons. The storage tank and the water distribution system, for which quantitative information is also unavailable, are in poor condition and require replacement. (Mullins, personal communication, November 1982.)

Wyola has been selected to receive federal grant monies for the replacement of the water system during 1983. Upon completion, the new water system is expected to provide a surplus capacity that will meet current and expected future levels of demand. (Mullins, personal communication, November 1982.)

Sewer. Currently, the sewer system in Wyola consists of individual septic tanks. However, Wyola has been selected to receive federal grant monies for the development of a sewer system during 1983. Upon completion, the new sewer system is expected to provide a surplus capacity that will meet current and any expected future levels of demand. (Mullins, personal communication, November 1982.)

#### 3.4.4.6 Fiscal

Tables 3.4.4.6-1 and 3.4.4.6-2 present a summary of the budgeted financial data for Lodge Grass for the 1983 fiscal year. This section presents the budgeted expenditure and revenue categories for both the general fund and the enterprise funds.

##### General fund

Lodge Grass's assessed valuation was approximately \$2 million in 1982. The property tax is the major revenue source for the community, closely followed by intergovernmental transfers and other miscellaneous revenues. Based on a \$2 million assessed valuation, one mill yielded \$198. The 1982 mill rate was 53.99 mills for the general fund. This mill rate raised approximately \$15 thousand during the year.

Public safety accounted for approximately 60 percent of the budgeted expenditures. Most (69 percent) of the public spending was for police protection.

There are currently no major capital facilities projects in the community.

##### Enterprise Funds

The enterprise funds in Lodge Grass include those for water, sewer, and garbage functions. User fees are the major revenue source for these funds. For the 1983 fiscal year, only 62.9 percent of the enterprise budgeted expenditures will derive from user fees. The additional money required will be obtained from a cash reserve fund (which has \$29,500 available at the start of the year) and a one time insurance payment to the water and sewer fund of \$3,505 each.

TABLE 3.4.4.6-1  
Budgeted FY 1983 Revenues  
Lodge Grass  
(1982 dollars)

Category	Revenue	Total Revenue
<u>General Fund</u>		
Property Tax	\$15,000	\$15,000
License and Permits	190	190
Intergovernmental Transfer		14,049
Federal	0	
State	14,049	
Charges for Service	3,505	3,505
Fines and Forfeits	500	500
Miscellaneous	13,400	13,400
Total General Fund		46,473
<u>Enterprise Fund</u>		
Water		32,808
User fees	16,420	
Other	16,388	
Sewer		19,518
User fees	6,305	
Other	13,213	
Garbage		15,321
User fees	8,448	
Other	6,873	
Total Enterprise		67,647
Total Revenue		\$114,120

Source: Mountain West Research-North, Inc.; Town of Lodge Grass, Operations Budget Document, 1982-1983 Fiscal Year.

TABLE 3.4.4.6-2

Budgeted FY 1983 Expenditures  
Lodge Grass  
(1982 dollars)

Category	Expenditures	Total Expenditures
<u>General Fund</u>		
General Government	\$14,175	\$14,175
Public Safety	35,420	23,450
Highway and Streets	1,040	1,040
Health	265	265
Culture and Recreation	150	150
Total General Fund		39,080
<u>Enterprise Fund</u>		
Water	21,915	
Sewer	11,400	
Garbage	14,619	
Total Enterprise Fund		47,934
Total Expenditure		\$87,014

Source: Mountain West Research-North, Inc.; Town of Lodge Grass Operations Budget Document 1982-1983 Fiscal Year.

## Debt

Lodge Grass has no outstanding debt at this time.

### 3.4.5 Central Area

#### 3.4.5.1 General Description

The central area of the Crow Reservation includes the area around St. Xavier and immediately to the east and west of the Bighorn River. This section describes the existing environment of the central area. Section 3.4.5.2 describes the area's population and economy. Section 3.4.5.3 describes the area's current housing inventory and the facilities and services that are available in St. Xavier.

#### 3.4.5.2 Central Area

##### Population and economy

The two major communities in the central portion of the reservation are St. Xavier, an agricultural community, and Fort Smith, headquarters for the National Park Service administration of the Bighorn Canyon National Recreation Area. The major populated areas of this portion lie along the the meandering Bighorn River.

The 1980 census population of the central portion of the reservation was 937 persons, 17 percent of the reservation total. As shown in Table 3.4.5.2-1, nearly one-half of the employed population held jobs in the agricultural sector. Trade, government, services, and mining sectors employ small but significant numbers of the area's residents. These census data indicate that 33 percent of the residents in the central area were employed.

#### 3.4.5.3 Other Topical Areas of Interest

##### Housing

Table 3.4.5.3-1 presents the housing unit count that will be used to make housing forecasts for the Crow Reservation central area. As shown in the table, 99 units or 30 percent of the total units are assumed to be Indian households. The remaining 233 units or 70 percent are non-Indian households. Of the 332 total units, 79 percent are single-family detached, 8 percent are multifamily units, and the remaining 13 percent are mobile homes.

##### Facilities and Services

St. Xavier (unincorporated). In the unincorporated community of St. Xavier many services are provided by the county. Other services are provided through local organizations, as discussed below.

The public facilities and services in St. Xavier that are included in the discussion of the existing environment are: fire, water, and sewer. Table 3.4.5.3-2 summarizes the information for facilities and services.



TABLE 3.4.5.2-1

Employment by Industry by Place of Residence  
Crow Reservation Central  
1980

Industry	Crow Reservation Central		Big Horn County		Percent of Sector
	Number	Percent	Number	Percent	
Ag, Forestry and Fisheries	143	46.3	680	17.1	21.0
Mining	31	10.0	292	7.3	10.6
Construction	15	4.8	219	5.5	6.8
Manufacturing	0	0.0	43	1.0	0.0
TCPU <sup>a</sup>	12	3.9	139	3.5	8.6
Wholesale & Retail Trade	43	13.9	589	14.8	7.3
FIRE <sup>a</sup>	26	8.4	113	2.8	23.0
Services	35	11.3	1,274	32.1	2.7
Government	4	1.3	613	15.4	0.6
TOTAL EMPLOYMENT	309	100.0	3,962	100.0	7.8

Source: U.S. Department of Commerce, Bureau of Census, 1980.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

TABLE 3.4.5.3-1

Year-round Housing Units by Type  
Crow Central Area  
(1980)

Type of Unit	Indian	Non-Indian	Total
Single-family detached	78	184	262
Multifamily	8	20	28
Mobile home	13	29	42
TOTAL	99	233	332

Source: Mountain West Research-North, Inc., 1982.

TABLE 3.4.5.3-2

Status of Existing Personnel, Capital Facilities, and Equipment  
St. Xavier (unincorporated)

Services	Personnel	Capital Facilities and Equipment
Fire	10 volunteer firemen	-- 1 fire truck (range and grass fire) <sup>a</sup> -- 1 - 1,000 gallon tank - pump capacity not available deficit capacity
Water	personnel not applicable	-- private water wells <sup>b</sup> adequate capacity
Sewer	personnel not applicable	-- treatment capacity not available <sup>c</sup> adequate capacity -- collection capacity not available <sup>c</sup> adequate capacity
Treatment		
Collection Capacity		

Source: Mountain West Research-North, Inc., 1982

<sup>a</sup>In the analyses of impacts, fire trucks are assumed to be designed for structural fire protection.<sup>b</sup>Private sector facilities are excluded from analysis in the impact sections of this report. Refer to Section 2.3.4 for discussion about the definition of services for analysis in this report.<sup>c</sup>Quantitative information about the capacities for the sewer treatment and collection systems is unavailable. Capacities are assumed to be consistent with appropriate standards. See Appendix D, Table D-6.

#### Fire

St. Xavier does not have a formal volunteer fire department. The county fire truck, stationed in St. Xavier, is designed for range and grass fire protection. County services out of Hardin and Bureau of Reclamation services out of Ft. Smith are available to respond to structural fires in the St. Xavier area. There is a need for a local fire truck in St. Xavier. (Caton, personal communication, November 1982.)

#### Water

Residents of St. Xavier obtain water from private water wells that are adequate for current needs. (Caton, personal communication, November 1982.)

#### Sewer

The sewer system in St. Xavier consists of one collection line. However no formal organization is responsible for the operation of this line. The collection system discharges into a sewer lagoon that is operated privately by the St. Xavier mission and school. The present system is considered adequate for current levels of demand although quantitative information about the capacity and rates of usage for the treatment and collection systems are unavailable. (Caton, personal communication, November 1982.)

Fort Smith (unincorporated). In the unincorporated community of Ft. Smith many services are provided by the county and are described in Section 3.3.2.4. Other services -- fire, water, and sewer -- are provided through local organizations, as discussed below and summarized in Table 3.4.5.3-3.

#### Fire

Ft. Smith does not have a formal volunteer fire department. The U.S. Department of the Interior, Bureau of Reclamation provides a fire truck that responds to fires in the Ft. Smith - St. Xavier area. Big Horn County also provides fire protection services for the area. (Adams, personal communication, November 1982.)

#### Water and sewer

The water and sewer services in Ft. Smith consist of two private residential systems and one system for housing of federal governmental employees. Each of the three water systems utilize water wells. There is a private water storage tank with a capacity of 100,000 gallons. The sewer system that services the federal governmental housing and one of the private developments utilize sewer lagoons for treatment. The remainder of Ft. Smith depends upon individual septic tanks for collection and treatment. Quantitative information about the capacities and rates of usage for water and sewer systems in Ft. Smith is unavailable.

TABLE 3.4.5.3-3

Status of Existing Personnel, Capital Facilities, and Equipment  
Ft. Smith (unincorporated)

Services	Personnel	Capital Facilities and Equipment
Fire	personnel not applicable	-- 1 fire truck (Department of the Interior) <sup>a</sup> -- 1 - 1,300 gallon tank, 1,000 gallon pump deficit capacity
Water	personnel not applicable	-- private water systems <sup>b</sup> adequate capacity
Sewer	personnel not applicable	-- private sewer systems <sup>b</sup> adequate capacity

Source: Mountain West Research-North, Inc., 1982

<sup>a</sup>In the analyses of impacts, fire trucks are assumed to be designed for structural fire protection.

<sup>b</sup>Private sector facilities are excluded from analysis in the impact sections of this report. Refer to Section 2.3.4 for discussion about the definition of services for analysis in this report.

### 3.4.6 West Area

#### 3.4.6.1 General Description

The west area includes the westernmost part of the Crow Reservation in Big Horn County. This area is located about 30 miles directly south of Billings and includes Pryor and the northern end of the Pryor Mountains. This section describes the existing environment in the west area. Section 3.4.6.2 describes the area's population and economy. Section 3.4.6.3 presents the area's current housing inventory and describes facilities and services in Pryor.

#### 3.4.6.2 West Area

##### Population and economy

The western portion of the Crow Indian Reservation has the smallest population of any of the areas discussed. According to 1980 census figures, the population of the area was 472 persons, 8 percent of the total. The largest population center in the area is Pryor, an unincorporated community.

The economy of the area is primarily based on agriculture, with small service and government sectors. According to the figures presented in Table 3.4.6.2-1, 43.0 percent of the area residents were employed at the time of the census. Many held jobs outside the community.

#### 3.4.6.3 Other Topical Areas of Interest

##### Housing

Table 3.4.6.3-1 presents the housing unit count that will be used to make housing forecasts for the Crow Reservation West Area. As shown in the table, 108 units or 73 percent of the total units are assumed to be Indian households. The remaining 39 units or 27 percent are non-Indian households. Of the 147 total units, 80 percent are single-family detached, 10 percent are multifamily units, and the remaining 10 percent are mobile homes.

Facilities and services. Most facilities and services are provided by the county and are described in Section 3.3.2.4. The locally provided (or needed) services in Pryor include fire, water, and sewer. These services are summarized in Table 3.4.6.3-2.

The Pryor Volunteer Fire Department (PVFD) services the immediate area but relies on Crow Agency for structural fires. The PVFD operates with ten volunteer firemen and two fire trucks. The fire trucks, although owned by the state and the county, are stored by private citizens in the Pryor area. Although the personnel, fire equipment, and storage space are adequate for current needs, the two fire trucks are designed primarily for range and grass fires. There is a need for a local fire truck for structural fires. (Sorrels, personal communication, November 1982.)

Pryor obtains its water from one well that has a production capacity of fifty gallons per minute (Raymond, personal communication, November 1982). The community has a water storage capacity of 1,800,000 gallons. Presently, the water distribution system is in good condition, requiring only normal maintenance and routine replacement of lines. The water treatment, storage, and distribution systems have surplus capacity. (Sorrels, personal communication, November 1982.)

The sewer system in Pryor is composed of two lagoons with a total area of approximately twelve acres (Raymond, personal communication 1982). The sewer collection system is in good condition requiring only

TABLE 3.4.6.2-1

Employment by Industry by Place of Residence  
Crow Reservation West Area  
1980

Industry	Crow Reservation West		Big Horn County		Percent of Sector
	Number	Percent	Number	Percent	
Ag, Forestry and Fisheries	116	57.1	680	17.1	17.0
Mining	0	0.0	292	7.3	0.0
Construction	6	3.0	219	5.5	2.7
Manufacturing	11	5.4	43	1.0	25.6
TCPU <sup>a</sup>	0	0.0	139	3.5	0.0
Wholesale & Retail Trade	6	3.0	589	14.8	1.0
FIRE <sup>a</sup>	0	0.0	113	2.8	0.0
Services	38	18.7	1,274	32.1	3.0
Government	26	12.8	613	15.4	4.2
TOTAL EMPLOYMENT	203	100.0	3,962	100.0	5.1

Source: U.S. Department of Commerce, Bureau of Census, 1980.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

TABLE 3.4.6.3-1  
 Year-round Housing Units by Type  
 Crow Reservation West Area  
 1980

Type of Unit	Indian	Non-Indian	Total
Single-family detached	87	31	118
Multifamily	10	4	14
Mobile home	11	4	15
TOTAL	108	39	147

Source: Mountain West Research-North, Inc., 1982.



TABLE 3.4.6.3-2

Status of Existing Personnel, Capital Facilities, and Equipment  
Pryor (unincorporated)

Services	Personnel	Capital Facilities and Equipment
Fire	10 volunteer firemen	-- 2 fire trucks (range and grass fire) <sup>a</sup> 1 - 1,000 gallon tank, pump capacity not available 1 - 250 gallon tank, pump capacity not available deficit capacity
Water	personnel not applicable	
Treatment/Production		-- 1 water well: 50 gpm surplus capacity
Storage Capacity		-- 180,000 gallons surplus capacity
Distribution Capacity		-- distribution capacity not available <sup>b</sup> surplus capacity
Sewer	personnel not applicable	
Treatment		-- 2 sewer lagoons surplus capacity
Collection Capacity		-- collection capacity not available <sup>b</sup> surplus capacity

Source: Mountain West Research-North, Inc., 1982.

<sup>a</sup>In the analyses of impacts, fire trucks are assumed to be designed for structural fire protection.<sup>b</sup>Quantitative information about the capacities for the water distribution and sewer collection systems is unavailable. Capacities are assumed to be consistent with appropriate standards. See Appendix D, Table D-6.

normal maintenance and routine replacement of lines. Quantitative information about the treatment capacity and rates of current usage are unavailable. However, both the sewer lagoons and the collection system have surplus capacity. (Sorrels, personal communication, November 1982.)

#### 3.4.7 Off-Reservation Crow

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

### 3.5 Northern Cheyenne Indian Reservation

#### 3.5.1 General Description

The Decker study focuses on the part of the Northern Cheyenne Indian Reservation that is located in Big Horn County because it is located closest to the proposed mines.

As throughout this report, the population and employment characteristics of the Northern Cheyenne are addressed at two levels in Section 3.5.2:

- 1) For the westernmost portion of the Northern Cheyenne Indian Reservation, located in Big Horn County, and which therefore falls within the project study area, detailed population, employment, and housing data are presented and project impacts identified;
- 2) For the Northern Cheyenne Indian Reservation as a whole, aggregate population and employment characteristics are discussed and issues of concern to the Northern Cheyenne people are presented.

Section 3.5.3 describes the housing inventory in the Big Horn County portion of the reservation and refers the reader to section 3.2.9 for a discussion of the road network on the reservation.

#### 3.5.2 Population and Economy

As shown in Table 3.5.2-1, the 1980 Northern Cheyenne population on the Northern Cheyenne Indian Reservation was 3,255 persons. Of this total, 822 persons, or 25 percent, lived in the westernmost portion of the reservation that lies in Big Horn County. The 1980 non-Indian population of the Big Horn County portion of the reservation was 191 persons. It is this western portion, with its major population center of Busby, that is the focus of this study.

In 1980, 50 percent of the Northern Cheyenne population was sixteen years of age or less, implying substantial growth in the numbers of Northern Cheyenne entering the labor force in future years. (See Northern Cheyenne Planning Office 1981 and Northern Cheyenne Planning Office and Northern Cheyenne Tribe 1981 for a more detailed discussion of the economic and demographic characteristics of the Northern Cheyenne.)

The western, Big Horn County portion of the reservation centers around the unincorporated town of Busby, located on FAS 314. Table 3.5.2-2 presents the 1980 census data on the employment characteristics of the Big Horn County reservation residents. As shown in the table, the principal sectors in which both Indian and non-Indian residents were employed were services (54.1 percent), government (18.0 percent), agriculture (10.8 percent), construction (5.5 percent), and mining (5.2 percent).

In recent years, the Northern Cheyenne have made concerted efforts to improve their employment skills, especially in the mining and construction sectors. A stated priority of the tribe is to improve their

TABLE 3.5.2-1

Northern Cheyenne Indian Population, Labor Force, and Employment  
Northern Cheyenne Indian Reservation

Item	Big Horn County	Rosebud County	Total N.C. Reservation
Population	822	2,433	3,255
Labor Force	334	673	1,007
Labor Force Participation Rate (percent)	40.6	27.7	30.9
Employment	227	522	749
Unemployment Rate (percent)	32.0	22.4	25.6

Source: Mountain West Research-North, Inc., 1983.

TABLE 3.5.2-2

Employment by Industry by Place of Residence  
 Northern Cheyenne  
 1980

Industry	Northern Cheyenne		Big Horn County		Percent of Sector
	Number	Percent	Number	Percent	
Ag., Forestry and Fisheries	33	10.8	680	17.1	4.8
Mining	16	5.2	292	7.3	5.5
Construction	17	5.5	219	5.5	7.8
Manufacturing	0	0.0	43	1.0	0.0
TCPU <sup>a</sup>	4	1.3	139	3.5	2.9
Wholesale & Retail Trade	15	4.9	589	14.8	2.5
FIRE <sup>a</sup>	0	0.0	113	2.8	0.0
Services	165	54.1	1,274	32.1	12.9
Government	55	18.0	613	15.4	9.0
TOTAL EMPLOYMENT	305	100.0	3,962	100.0	7.7

Source: U.S. Department of Commerce, Bureau of Census, 1980.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

employment status at energy development projects throughout southeastern Montana. They have made substantial gains toward this objective, particularly in Rosebud County.

The tribe is increasing its skills relative to energy industries in three ways. First, in 1980 the tribe signed a contract with ARCO for oil and gas development on the reservation. According to this contract, a certain percentage of Northern Cheyenne must be trained and employed. Second, Dull Knife Memorial College offers training programs for a number of occupations, including welding, heavy equipment operation, and heavy equipment maintenance. Over the past three years, the college has turned out about fifteen graduates annually in the latter occupations (Sprang, personal communication, December 1982). Third, the Montana Power Company has provided transportation and craft training for Northern Cheyennes since September, 1979.

In 1982, the Northern Cheyenne held about 5 percent of all energy-related jobs in Rosebud County. They held about 4 percent of coal mining jobs and about 5 percent of power plant jobs (both construction and operations). Since that time, about 75 percent of the Northern Cheyenne who have entered the craft training program have completed it. Over the Colstrip 3 and 4 construction period, Montana Power and its contractors have employed about 400 Northern Cheyenne (including rehires after layoffs). Montana Power, Western Energy, and the Northern Cheyenne have established a "Surface Mining Institute" at Twin Bridges to train Indians for mining jobs. (Hand, personal communication, December 1982.) Currently, 14 Northern Cheyenne are attending a sixteen-week course there in welding and equipment maintenance; they will complete the course in February, 1983 (Sprang, personal communication, December 1982).

### 3.5.3 Other Topical Areas of Interest

#### 3.5.3.1 Housing

Table 3.5.3.1-1 presents U.S. Census information on the housing inventory of the Northern Cheyenne Indian Reservation portion of Big Horn County for 1970 and 1980. As shown, the total number of housing units increased from 175 units in 1970 to 288 units in 1980, an increase of 64.6 percent. The increase over the decade was composed primarily of single-family units, which represented 91 percent of the 113 unit increase. Both multifamily and mobile home units realized 4.4 percent increases over the same period.

The housing unit count for Indian units on the Northern Cheyenne Reservation was not adjusted as it was on the Crow Reservation. Of the 288 year-round units on the Northern Cheyenne Reservation, it is estimated that 217 are Indian units and 71 are non-Indian units.

#### 3.5.3.2 Transportation

The Northern Cheyenne have expressed several concerns regarding the condition of the roads linking the reservation with the mine site and the effects of the mines on traffic levels, road safety, and unauthorized access of tribal lands by non-Cheyenne. These issues are discussed in Section 3.2.7.

## 3.6 Sheridan County and Communities

### 3.6.1 General Description

Sheridan County is located in northern Wyoming and is bordered to the north by Montana. The county's eastern portion is composed primarily of semiarid plains. Its western half is dominated by the Signorn Mountains, which represent a valuable visual and recreational attribute but also impose an important geographic boundary to the west. The county's principal community is the city of Sheridan, which in 1980 had

TABLE 3.5.3.1-1

Northern Cheyenne Reservation (Big Horn County Portion)  
Housing Units by Type

Type of Unit	1970	1980	Change 1970 to 1980		
			Number of Units	Percent of Change (year-round)	Percent 1970-1980 Growth
Total Housing Units	175	288	113		64.6
Year-round Units	175	288	113	100.0	64.6
Single-family detached	145	248	103	91.2	71.0
Multifamily	10	15	5	4.4	50.0
Mobile homes	20	25	5	4.4	25.0

Source: U.S. Department of Commerce, Bureau of the Census, Detailed Housing Characteristics for Montana, 1970, 1980.

a population of 15,139 people or 60 percent of the county total of 25,040 people. Another 5,016 people, or 20 percent of the population, lived in the semirural area immediately around Sheridan. About 7 percent of the county's population lived in the Ranchester/Dayton area and the remaining 13 percent of the population lived in Story and the rest of the county.

Since 1970, Sheridan County's primarily agricultural economy has diversified rapidly. This diversification can be attributed to increased mining activity in the Decker, Montana area and to the city of Sheridan's emerging role as a regional trade center. Both of these trends have been stimulated by rapid population growth in the area. In addition, they continue to stimulate population growth as more trade and service businesses move into the area to take advantage of new business opportunities.

The remainder of this section is divided into four parts. Section 3.6.2 portrays the existing environment of Sheridan County as a whole. Section 3.6.3 provides a more detailed description of Sheridan and the greater Sheridan area. The Ranchester/Dayton area is described in Section 3.6.4. And finally, the rest of Sheridan County is described in Section 3.6.5.

### 3.6.2 Sheridan County

#### 3.6.2.1 Population and Economy

Historically, Sheridan County has been an agriculturally based rural county, with the city of Sheridan serving portions of southeastern Montana and northeastern Wyoming as a second-order trade center. As shown in Table 3.6.2.1-1, the county's population fell from a 1950 post-war level of 20,185 people to 17,852 people by 1970, a decrease of about 12 percent. This trend can be contrasted to the modest growth that occurred in Wyoming over the same period.

Between 1970 and 1980, energy-related development in the county and across the Wyoming coal fields caused the population growth rate of the state and the county to surge well above the national average. The county's population grew from its 1970 level to 25,048 people in 1980, an increase of 7,196 people or 40 percent.

Table 3.6.2.1-2 presents Sheridan County's components of population change during the 1970s, according to the U.S. Bureau of Census. During the period, approximately 5,700 people migrated into the county. As shown in Table 3.6.2.1-3, most of the population increase centered in the city of Sheridan and the surrounding area. The population of the Sheridan division increased by nearly 60 percent. The population of every other incorporated town increased by no less than 35 percent.

A dramatic change in the age composition of the county's population occurred with the large influx of working age people. As shown in Table 3.6.2.1-4, Sheridan County's median age declined from 37 years in 1970 to 30 years in 1980. The county is racially homogenous, with 98 percent of the total population being classified as white in both 1970 and 1980.

Table 3.6.2.1-5 further depicts the composition of the population. Persons under 16 years of age comprised about 25 percent of the population in both 1970 and 1980. The largest cohort increase was in the 25 to 44 age group, due to the in-migration of mature, skilled workers in the energy areas.

As shown in Table 3.6.2.1-6, the national trend toward smaller household was exhibited by Sheridan County, whose average household size declined from 3.03 persons in 1960 to 2.61 persons in 1980. Sheridan County has historically shown a smaller household size than either the state or the nation in 1960, 1970, and 1980.

TABLE 3.6.2.1-1

Population Growth  
Sheridan County, Wyoming, United States  
1940-1980

Population	Sheridan County	Wyoming	United States
1940 Population	19,255	250,742	132,165,129
Percent change 1940-1950	4.8	15.9	14.5
Percent average annual growth 1940-1950	0.5	1.5	1.4
1950 Population	20,185	290,529	151,325,798
Percent change 1950-1960	-5.9	13.6	18.5
Percent average annual growth 1950-1960	-0.6	1.3	1.7
1960 Population	18,989	330,066	179,323,175
Percent change 1960-1970	-6.0	0.7	13.3
Percent average annual growth 1960-1970	-0.6	0.07	1.3
1970 Population	17,852	332,416	203,211,926
Percent change 1970-1980	40.3	41.6	11.5
Percent average annual growth 1970-1980	3.4	3.5	1.1
1980 Population	25,048 <sup>a</sup>	470,816	226,504,825

Sources: U.S. Department of Commerce, Bureau of the Census, 1980 Census Preliminary Population and Housing Unit Counts, January 1981; U.S. Department of Commerce, Bureau of the Census, 1970 Census of the Population, Wyoming, United States, Tables 17, 35, 48; U.S. Department of Commerce, Bureau of the Census, 1950 Census of the Population: Characteristics of the Population, Wyoming, United States, Table 41.



TABLE 3.6.2.1-2  
Components of Population Change  
Sheridan County  
1970-1980

Year	Population	Change		Components of Change			
		Number	Percent	Births	Deaths	Net Migration	Net Migration Percent
1970	17,852						
1971	18,700	848	4.7	258	233	823	4.6
1972	18,928	228	-1.2	255	261	234	1.2
1973	18,990	62	0.3	259	247	50	0.2
1974	19,472	482	2.5	235	254	501	2.6
1975	20,008	536	2.7	286	246	496	2.5
1976	20,040	32	0.1	388	253	-103	-0.5
1977	22,005	1,965	9.8	550	233	1,648	8.2
1978	23,574	1,569	7.1	583	258	1,244	5.6
1979	24,435	861	3.6	575	222	508	2.1
1980	25,048	613	2.5	604	248	257	1.0

Sources: Department of Commerce, U.S. Bureau of the Census, Population Projections, P-25 series, annual report, State of Wyoming, Vital Statistics 1976-1980, Department of Health and Medical Services, Lucinda McCaffrey, personal communication, Vital Records Statistician, Vital Records Services, Department of Health and Medical Services, October 1982.

TABLE 3.6.2.1-3

Community Population  
Sheridan County  
1970 and 1980

Community	Population		Change		Proportion of Total Change Accounted for by Each Community
	1970	1980	Number 1970-1980	Percent 1970-1980	
Sheridan Division	11,880	18,961	7,081	59.6	98.4
Clearmont Town	141	191	50	35.4	0.7
Sheridan City	10,856	15,146	4,290	39.5	59.6
Sheridan South Division	3,402	3,851	449	13.2	6.2
Sheridan West Division	2,570	2,236	-334	-13.0	-4.6
Dayton Town	396	701	305	77.0	4.2
Ranchester Town	208	655	447	214.9	6.2
TOTAL	17,852	25,048	7,196	40.3	100.0

Source: U.S. Department of Commerce, Bureau of Census, 1980 Advanced Reports Census of Population and Housing, Montana, Washington, D.C.; 1970 Census of Population, Montana Number of Inhabitants, Part A, Washington, D.C.

Note: Because of changes in the geographic definition of Census Enumeration Districts, community definitions presented in this table differ from those used in the analysis. Those community definitions are based on 1980 Census Enumeration Districts; these are based on 1970 Census Enumeration Districts. 1970 populations readjusted to fit 1980 Census EDs.

TABLE 3.6.2.1-4

Distribution of Population by Age, Race,  
and Place of Residence  
Sheridan County and Wyoming  
1970, 1980

Characteristics of Population	1970		1980			
	Sheridan County Number	Sheridan County Percent	Wyoming Percent	Sheridan County Number	Sheridan County Percent	Wyoming Percent
Age Distribution						
Under 5	1,095	6.1	8.5	2,145	8.6	9.6
5 - 9	1,446	8.1	10.4	1,965	7.8	8.4
10 - 14	1,796	10.1	10.9	1,856	7.4	7.9
15 - 19	1,735	9.7	9.8	2,047	8.2	9.1
20 - 24	900	5.0	7.4	2,106	8.4	10.8
25 - 29	819	4.6	6.6	2,493	10.0	10.5
30 - 34	812	4.5	5.6	2,104	8.4	8.4
35 - 39	873	4.9	5.5	1,558	6.2	6.3
40 - 44	1,075	6.0	5.6	1,231	4.9	5.0
45 - 49	1,170	6.6	5.6	1,031	4.1	4.4
50 - 54	1,198	6.7	5.3	1,211	4.8	4.5
55 - 59	1,135	6.4	4.9	1,175	4.7	4.0
60 - 64	961	5.4	4.1	1,142	4.6	3.3
65+	2,837	15.9	9.0	2,984	11.9	7.9
Median Age	36.8			29.8		

TABLE 3.6.2.1-4 (cont'd)

Distribution of Population by Age, Race,  
and Place of Residence  
Sheridan County and Wyoming  
1970, 1980

Characteristics of Population	1970		1980	
	Sheridan County Number	Sheridan County Percent	Sheridan County Number	Wyoming Percent
Ethnic Distribution				
White	17,662	98.9	24,646	98.4
Nonwhite	190	1.1	402	1.6
TOTAL POPULATION	17,852	100.0	25,048	100.0

Sources: U.S. Department of Commerce, Bureau of the Census, 1970 Census of the Population: Characteristics of the Population, Wyoming, United States, Tables 19, 20, 34, 35, 49, 50. U.S. Department of Commerce, Bureau of the Census, 1980 Census of the Population: Characteristics of the Population, Wyoming, United States, Tables 19, 20, 46.

TABLE 3.6.2.1-5

Population by Age and Sex  
Sheridan County  
1970 and 1980

Sex and Age Group	1970	Percent of Total	1980	Percent of Total	Average Annual Growth 1970-1980
Total Population	17,852	100.0	25,048	100.0	3.4
0- 5	1,306	7.3	2,553	10.2	6.9
6-15	3,433	19.2	3,861	15.4	1.2
16-24	2,233	12.5	3,705	14.8	5.2
25-44	3,579	20.0	7,386	29.5	7.5
45-64	4,464	25.1	4,559	18.2	0.2
65 and Over	2,837	15.9	2,984	11.9	0.5
Male Population	8,886	49.7	12,573	50.2	3.5
0- 5	715	4.0	1,334	5.3	6.4
6-15	1,767	9.9	1,971	7.9	1.1
16-24	1,129	6.3	1,850	7.4	5.1
25-44	1,738	9.7	3,900	15.6	8.4
45-64	2,219	12.4	2,270	9.1	0.2
65 and Over	1,318	7.4	1,248	4.9	-0.5

TABLE 3.6.2.1-5 (cont.)

Population by Age and Sex  
Sheridan County  
1970 and 1980

Sex and Age Group	1970	Percent of Total	1980	Percent of Total	Average Annual Growth 1970-1980
Female Population	8,966	50.3	12,475	49.8	3.4
0- 5	591	3.3	1,219	4.9	7.5
6-15	1,666	9.4	1,890	7.5	1.0
16-24	1,102	6.2	1,855	7.4	5.3
25-44	1,841	10.3	3,486	13.9	6.6
45-64	2,245	12.6	2,289	9.2	0.2
65 and Over	1,519	8.5	1,736	6.9	1.3

Source: U.S. Department of Commerce, Bureau of the Census, 1970 Census of the  
Population: Characteristics of the Population, Wyoming, Table 35, 1980 Census, of the  
Population: Characteristics of the Population, Wyoming, Table 45.

TABLE 3.6.2.1-6  
Average Household Size  
Sheridan County, Wyoming, United States  
1960, 1970, 1980

Year	Sheridan County	Wyoming	United States
1960	3.03	4.42	3.29
1970	2.78	3.55	3.11
1980	2.61	2.78	2.75

Source: U.S. Department of Commerce, Bureau of the Census, 1980 Census Preliminary Population and Housing Unit Counts, January 1981; U.S. Department of Commerce, Bureau of the Census, 1970 Census of the Population, Wyoming, United States, Tables 22, 36, 54; U.S. Department of Commerce, Bureau of the Census, 1960 Census of the Population: Characteristics of the Population, Wyoming, United States, Table 28.

Table 3.6.2.1-7 shows that education attainment in Sheridan County compared favorably with the state and nation in 1970. By 1980, the overall attainment of the population appeared to improve, as larger portions of the population had completed high school and/or college.

One effect the expanded economy has had on Sheridan County is the substantially increased labor force participation rate of women, especially since 1960. This is due partly to a changed attitude regarding working women, but also to the demand for labor during economic expansion when women began to fill jobs traditionally held by men. As reflected in Table 3.6.2.1-8, the labor force participation among women in Sheridan County has risen dramatically from 25.9 percent in 1960 to 51.2 percent in 1980. Over the same period, the labor force participation rate of men declined from 75.2 percent in 1960 to 72.3 percent in 1980.

As shown in tables 3.6.2.1-9 and 3.6.2.1-10, the occupation of employed persons changed since 1970, with craftsmen, transport, service, and management increases reflecting the increased energy employment and secondary employment that occurred during the decade.

### Economy

As shown in Table 3.6.2.1-11, total employment increased slightly from 1960 to 1970. Agricultural employment of Sheridan County's residents declined but government services, trade, and mining employment increased moderately. Between 1970 and 1980, the energy boom caused mining employment to increase by 670 percent, construction employment by 200 percent, and TCPU by 120 percent. Services and trade followed with increases of 80 and 50 percent, respectively.

Table 3.6.2.1-12 shows the large increase of nonfarm proprietors between 1970 and 1980, reflecting Sheridan's emerging role as an area trade center. At the same time, the number of farm proprietors remained essentially stable, while salaried farm workers increased moderately. These trends signal a shift from a traditionally agricultural economy to a more diversified, commercial economy.

As illustrated in Table 3.6.2.1-13, agricultural employment in 1980 only represented about 7 percent of all basic employment, while mining and construction represented about 20 and 11 percent, respectively. Basic employment accounted for about 44 percent of total employment, which indicates the strength of Sheridan as a secondary trade center where trade and services represent about 40 percent of basic employment and 50 percent of nonbasic employment.

As shown in Table 3.6.2.1-14, Sheridan County's and Wyoming's unemployment rates were very close to 4 percent throughout the decade.

### Income

As shown in Table 3.6.2.1-15, total personal income, in constant 1972 dollars, grew from \$51 million in 1970 to \$83 million in 1980, an increase of 88 percent. Per capita income increased from \$4,441 in 1970 to \$5,931 in 1980, an increase of about 34 percent.

#### 3.6.2.2 Social Life and Cultural Diversity

The history of Sheridan County is important to its residents' perceptions of community, of place, and of the future. The accompanying Historical Overview of the study area provides insight into the trends and events that have shaped the social environment of the region and that will continue to be important in its response to the future (HRA 1983). Of particular importance to the county was its early (1880-1920)



TABLE 3.6.2.1-7

Educational Attainment of Persons Twenty-Five and Older  
 Sheridan County, Wyoming, and United States  
 1970, 1980

Highest Education Level Completed	1970			1980	
	Sheridan County		Wyoming	Sheridan County	
	Number	Percent	Percent	Number	Percent
Less than 8 Years	2,531	23.3	20.1	1,875	12.5
9-11 Years	1,774	16.3	17.1	1,672	11.2
High School Graduate	3,559	32.8	36.2	5,719	38.3
1-3 Years of College	1,783	16.4	14.8	3,135	21.0
4 or more Years of College	1,214	11.2	11.8	2,542	17.0

Sources: U.S. Department of Commerce, Bureau of the Census, 1970 Census of the Population: Characteristics of the Population, Wyoming, United States, Tables 51, 86, 120. Census Retrieval and Information Service, 1980 Census, Tape STF3A, Sheridan County, Cheyenne, Wyoming 1982.

TABLE 3.6.2.1-8  
Labor Force Participation Rates  
Sheridan County and Wyoming  
1960, 1970, 1980

Year/Sex	Participation Rate	
	Sheridan County	Wyoming
1960		
Male	75.2	80.7
Female	25.9	34.0
1970		
Male	75.5	73.7
Female	31.4	38.8
1980		
Male	72.3	NA
Female	51.2	NA

Source: U.S. Department of Commerce, Bureau of Census, Characteristics of the Population, Wyoming, 1960 General Social and Economic Characteristics, Table 83; 1970 General Social and Economic Characteristics, Table 121; 1980 Census and Retrieval and Information Service, Laramie, Wyoming.

Note: NA = not available.

TABLE 3.6.2.1-9

Occupation of Employed Persons 16 Years and Over  
Sheridan County and Wyoming  
1970

Occupation	Sheridan County		Wyoming	
	Number	Percent	Number	Percent
Professional, Technical, and Kindred Workers	1,078	16.3	18,795	15.2
Managers and Administrators, except Farm	698	10.5	13,569	11.1
Sales Workers	394	5.9	6,712	5.4
Clerical and Kindred Workers	1,093	16.4	18,175	14.7
Craftsman, Foreman, and Kindred Workers	691	10.4	16,903	13.7
Operatives, except Transport	360	5.4	10,491	8.5
Transport Equipment Operatives	222	3.3	4,649	3.8
Laborers, except Farm	276	4.1	5,327	4.3
Farmers and Farm Managers	360	5.4	6,755	5.5
Farm Laborers and Farm Foreman	309	4.6	4,306	3.5
Service Workers, except Private Household	1,020	15.3	15,966	12.9
Private Household Workers	162	2.4	1,741	1.4
TOTAL EMPLOYED	6,663	100.0	123,389	100.0

Source: U.S. Department of Commerce, Bureau of the Census, 1970 Census of the Population: Characteristics of the Population, Wyoming, Tables 54, 91, and 122.

TABLE 3.6.2.1-10

Occupation of Employed Persons 16 Years and Over  
Sheridan County and Wyoming  
1980

Occupation	Sheridan County		Wyoming	
	Number	Percent	Number	Percent
Professional, Technical, and Kindred Workers	1,651	14.7	31,064	14.3
Managers and Administrators, except Farm	1,130	10.1	21,503	9.9
Sales Workers	924	8.3	18,313	8.4
Clerical and Kindred Workers	1,454	13.0	30,858	14.2
Craftsman, Foreman, and Kindred Workers	2,125	19.0	43,000	19.8
Operatives, except Transport	330	2.9	7,998	3.7
Transport Equipment Operatives	835	7.5	16,279	7.5
Laborers, except Farm	498	4.4	10,466	4.8
Farmers, Farm Managers, Farm Laborers, and Farm Foreman	668	6.0	10,811	5.0
Service Workers, except Private Household	1,502	13.4	26,257	12.1
Private Household Workers	81	0.7	825	0.4
TOTAL EMPLOYED	11,198	100.0	217,374	100.0

Source: U.S. Department of Commerce, Bureau of the Census, 1980 Census of the Population: Characteristics of the Population, Montana, United States, Tables 54, 91, and 122.

TABLE 3.6.2.1-11

Employment by Industry by Place of Residence  
Sheridan County  
1960, 1970, 1980

Industry	Employment		Percent Total Employment		Percent Change	
	1960	1970-1980	1960	1970-1980	1960-1970	1970-1980
Ag, Forestry, & Fisheries	964	798	668	14.5	12.0	6.0
Mining	56	182	1,410	0.8	2.7	12.6
Construction	657	430	1,287	9.9	6.5	11.5
Manufacturing	345	300	376	5.2	4.5	3.4
TCPU <sup>a</sup>	560	455	985	8.4	6.8	8.8
Wholesale & Retail Trade	1,376	1,572	2,309	20.7	23.6	20.6
FIRE <sup>a</sup>	233	214	469	3.5	3.2	4.2
Services	1,757	1,867	3,333	26.4	28.0	29.8
Government	606	845	361	9.1	12.7	3.2
TOTAL EMPLOYMENT	6,554	6,663	11,198	100.0	100.0	100.0
					0.2	68.1

Source: U.S. Department of Commerce, Bureau of Census; Mountain West Research-North, Inc., Sept. 1982.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

TABLE 3.6.2.1-12

Employment by Type and Industrial Sector by Place of Work  
 Sheridan County  
 1970, 1980

Industry	Employment		Percent of Total Employment		Percent Change 1970-1980	Average Annual Growth 1970-1980
	1970	1980	1970	1980		
Farm Proprietors	510	509	6.2	4.3	-0.2	-0.0
Nonfarm Proprietors	952	1,432	11.7	12.1	50.4	4.2
Total Wage and Salary Employment	6,704	9,896	82.1	83.6	47.6	4.0
Farm	373	440	4.6	3.7	18.0	1.7
Nonfarm	6,331	9,456	77.5	79.9	49.4	4.1
Private	4,325	6,992	53.0	59.1	61.7	4.9
Ag. Services, Forest, Fish	74	75	0.9	0.6	1.4	0.1
Mining	195	386	2.4	3.3	97.9	7.1
Construction	517	1,036	6.3	8.8	100.4	7.2
Manufacturing	367	495	4.5	4.2	34.9	3.0
TCPU <sup>a</sup>	367	445	4.5	3.8	21.3	1.9
Wholesale Trade	205	340	2.5	2.9	65.9	5.2
Retail Trade	1,262	1,959	15.5	16.5	55.2	4.5
FIRE <sup>a</sup>	190	400	2.3	3.4	110.5	7.7
Services	1,148	1,856	14.1	15.7	61.7	4.9
Government	2,006	2,464	24.6	20.8	22.8	2.1
TOTAL EMPLOYMENT	8,166	11,837	100.0	100.0	45.0	3.8

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, 1976-1980, Washington, D.C., April 1982. Includes full- and part-time employment.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

TABLE 3.6.2.1-13

Basic and Nonbasic Employment by Industrial Sector by Place of Residence  
Sheridan County  
1980

Industrial Sector	Total Employment		Basic Employment		Nonbasic Employment	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Agricultural Proprietors	509	3.9	509	9.0	0	0.0
Agricultural Labor	440	3.4	440	7.8	0	0.0
Agriculture, Forestry, Fisheries	104	0.8	0	0.0	104	1.4
Mining	1,151	8.9	1,151	20.3	0	0.0
Construction	1,612	12.5	638	11.2	974	13.4
Manufacturing	523	4.0	325	5.7	198	2.7
TCPU <sup>a</sup>	503	3.9	314	5.5	189	2.6
Trade	2,814	21.8	844	14.9	1,970	27.1
FIRE <sup>a</sup>	500	3.9	150	2.6	350	4.8
Services	2,314	17.9	810	14.3	1,504	20.7
Government	2,464	19.1	493	8.7	1,971	27.1
TOTAL EMPLOYMENT	12,934	100.0	5,674	100.0	7,260	100.0

Source: Mountain West Research-North, Inc., 1982. Includes full- and part-time employment.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

TABLE 3.6.2.1-14

Labor Force, Employment and Unemployment  
Sheridan County and Wyoming  
1970-1980

Year	Labor Force	Total Employment	Total Unemployment	Unemployment Rate	Wyoming Unemployment Rate
1970 <sup>a</sup>	7,600	7,320	280	3.7	4.4
1971 <sup>a</sup>	7,710	7,380	330	4.2	4.4
1972	7,269	6,945	324	4.5	3.8
1973	7,226	6,945	282	3.9	3.3
1974	7,595	7,286	309	4.1	3.4
1975	8,112	7,760	352	4.3	4.2
1976	8,803	8,443	360	4.1	4.1
1977	9,515	9,159	356	3.7	3.6
1978	10,183	9,814	369	3.6	3.3
1979	10,888	10,599	290	2.7	2.7
1980	10,964	10,474	490	4.5	4.0

Source: Wyoming Department of Employment Security, various years.

<sup>a</sup>1970 and 1971 data based on number of jobs at place of work. 1972 and subsequent data based on number of workers at place of residence.



TABLE 3.6.2.1-15

Components of Personal Income  
Sheridan County  
1970, 1980  
(thousands of 1972 dollars)

Category	Components of Personal Income 1970	1980	Percent of Total Personal Income 1970	1980	Average Annual Growth 1970-80
Labor and Proprietor's Income	\$51,546	\$83,298	65.0	55.9	4.9
Less: Personal Contributions for Social Insurance	2,569	4,391	-3.2	-2.9	5.5
Plus: Dividends, Interest, and Rent	19,495	39,025	24.6	26.2	7.2
Plus: Transfer Payments	10,073	17,921	12.7	12.0	5.9
Plus: Residency Adjustment	795	13,036	1.0	8.8	32.3
Personal Income by Place of Residence	79,340	148,889	100.0	100.0	6.5
Per Capita Income	4,441	5,931			2.9

Source: Mountain West Research-North, Inc., 1982.

experience with very rapid growth, economic and social diversification, and politically successful "native sons". During this period, the county's relationship with outsiders and large-scale corporations -- Eastern and European ranchers and investors, dude ranchers and tourists, the railroads, coal companies, and agricultural and forest product processing companies -- as well as its prosperity, set a tone and established social, economic, and political networks that persisted through the long, painful period of economic and population decline that followed (1920-1970).

By 1970, Sheridan had established a relatively stable equilibrium following decades of decline that was particularly abrupt during the 1950s when a number of major basic economic activities ceased -- including the remaining underground coal mines, the sugar factory, the brewery, and the flour mill. This drastic cutback in industrial activity left the county increasingly dependent upon agriculture, tourism, the federally funded veterans hospital, and regional trade. Agriculture, especially, took on a special significance, socially as well as economically. The philosophy and outlook of the rancher (self-reliance, independence, and freedom of action) became predominant in the county.

By 1970, the county was a conservative (if not ultraconservative) agricultural and trade area heavily weighted toward an older population that found itself embedded in a national society that was liberal, struggling with youth-oriented issues, and in which environmental issues were becoming politically salient. It also found itself facing the prospect of development of its mineral resources at an unprecedented -- and unknown -- rate.

Given its past -- and its continuing exposure to outside influence through the veterans hospital, tourism, and coal mining -- the county's (and particularly Sheridan's) evident and self-proclaimed conservative orientation comes somewhat as a surprise. However, agriculture -- especially ranching -- not tourism, commerce, professional services, or mining, suffuse residents' descriptions of the county's character, even in Sheridan which has emerged as a significant regional commercial and service center. In part, this seems to reflect a continuing perception that ranching constitutes a key, enduring, economic base of the county and larger region that also provides a satisfying regional ambience that is not provided by mining, tourism, or commerce. In addition, the long-term practice of ranchers from a wide area of Wyoming and Montana to retire to the Sheridan area has given the county a concentration of persons with ranching backgrounds and values that is disproportionate to the economic role of ranching itself.

In 1970, the population of Sheridan County was 17,852, 6 percent below the 1960 population of 18,989. By 1980, largely because of the expansion of strip mining activities in the Decker area, the population of the county had increased 40 percent, to 25,148. During this period of relatively rapid population growth and economic expansion, the county exhibited both stability and change.

The growth that occurred during the 1970s caused little change in the ethnic or racial composition of the county. In 1970, the population of Sheridan County was about 99 percent white, with relatively little strong ethnic grouping, though historically the area had had fairly substantial concentrations of Russians and Germans (brought in to work sugar beets), Poles, and Italians (brought in to work in the underground mines). In 1980 the county was still about 98 percent white.

According to U.S. Census classifications, the growth of the 1970s did not cause major modifications of residential distribution. The county was 61 percent urban in 1970 and 60.5 percent urban in 1980. Despite the growth in population during the decade, the population density of the county remained fairly low. In 1970 it was 7.1 persons per square mile; in 1980, it had risen to just under 10 persons per square mile. Unlike the earlier coal development periods, the activity of the 1970s did not result in the establishment of any new towns, though it did extend the urbanized area around Sheridan. Hence, the political structure of the county, in terms of municipalities, remained almost unchanged between 1970 and 1980.

The most notable change in population structure during the growth of the 1970s was the decline in median age and in the percentage of population in the 65 and over age category. In 1970, nearly 16 percent of the population was 65 years of age or over; in 1980, though still relatively high, this percentage had dropped to 11.9. (The absolute numbers reflect a large increase in the younger cohorts rather than any substantial change in Sheridan's role as a retirement community for the surrounding rural areas.) Following national trends, the average household size also declined, falling from 2.78 to 2.61 persons per household between 1970 and 1980. Educational levels increased substantially (see tables 3.6.2.1-8 and 3.6.2.1-9), reflecting the changing age and occupational structure.

Politically, as described in more detail in subsequent sections, Sheridan County continued to be composed of one major urban center (Sheridan), two small incorporated communities (Ranchester and Dayton), and several unincorporated communities of varying sizes. Throughout the county, residents also live in scattered, rural environments. The city of Sheridan is the county seat and the locus of most governmental activities of the county. The county is administered by a three person county commission.

At the beginning of the 1970s, coal mining in Sheridan County was limited to the small Big Horn Mine located just north of the city of Sheridan. Coal mining had not always been such a small part of the county scene. For 70 years, 1883-1953, Sheridan county had been the site of an underground mining industry that, at times, had been the dominant force in the county economy (Kuzara 1977). At least eighteen mines had been in operation during this 70 year period. Although their importance had declined after the 1920s, the mines and miners had persisted in the area around Sheridan until the 1950s, clustered primarily along the rail lines north of Sheridan in small operations with their associated company towns. Company towns such as Monarch, Acme, and Carneyville were present into the 1950s. The miners established a complex social network, forming bands, baseball and football teams, holding dances and socials, and supporting the schools set up for their children. The city of Sheridan catered to many of the needs of the eastern European (especially Polish) miners.

At the beginning of the 1970s, few traces of the underground mines were left, and many of the area's residents in 1980 had little empathy for this aspect of the region's history, frequently indicating no knowledge about the location or characteristics of the earlier mines.

Large scale coal mining reemerged in 1972 with the opening of the Decker mine just across the border in Montana. This was followed by the East Decker and then the Spring Creek mines, both in Montana. The expansion of mining coincided with the emergence of the environmental movement, which opposed strip mining, and crystallized a no-growth attitude among some of the longtime residents of Sheridan County. As a consequence, the new mining activities and the miners were not entirely welcome in Sheridan County, despite the positive effect they had on commercial activities and their provision of employment to small ranchers in the area who needed additional income from outside jobs to keep their ranches going.

Once started, strip mining and coal conversion facilities were widely expected to expand dramatically. In addition to the mines that actually did go into operation, others were considered, new power plants were suggested, and the possibilities of synfuel plants were discussed. It was felt by many that coal mining and energy development would continue at a rapid -- perhaps much too rapid -- pace over the foreseeable future. History has shown the error of these dramatic growth forecasts. Almost all of the proposed projects failed to materialize, and the unlimited energy development and dramatic population growth forecast for the area first stalled, then, in the early 1980s, underwent actual decline.

The county underwent many changes during the 1970s -- the specifics are discussed in more detail on a community basis. As a result, the county and its residents are generally well prepared to deal with population and economic growth. They are familiar with the problems and benefits that are likely to occur. For the most part, mechanisms are in place that will allow local governments to respond promptly -- many of the most difficult and political issues have already been addressed. Members of the community and their leaders are experienced enough with rapid growth, with mining companies, regulatory agencies, envi-

ronmentalists, and miners that they are likely to be better prepared to respond now than they were in 1972. The physical capacity of the county to absorb growth has increased substantially over the last decade, and the social organization of the communities in the county has expanded to incorporate the new residents, both miners and nonminers alike. Perhaps most important, residents of the county are now aware of the need to marshall their resources effectively in order to maximize their ability to respond.

### 3.6.2.3 Housing

This section contains a brief overview of Sheridan County's residential growth since 1970 and a review of current housing market conditions. The review focuses on factors that influence supply and demand throughout the county and discusses their effect on the local housing market and on the county's capacity to absorb new residential growth. Inventories of 1980 housing in Sheridan, the greater Sheridan area, Ranchester-Dayton, and the remainder of the county are presented in subsequent sections.

#### Recent housing trends

Table 3.6.2.3-1 presents the U.S. Census data on Sheridan County's housing stock by type of unit for 1970 and 1980. Sheridan County housing stock grew from 6,893 to 10,928 over the period, an increase of 58.5 percent. As shown in the table, single-family units accounted for about 40 percent of the county's growth over the 1970-1980 period. Multifamily units accounted for 32 percent of the growth, and mobile homes accounted for the remaining 28 percent.

Of the 4,035 housing units added to Sheridan County's inventory between 1970 and 1980, 2,166 or 54 percent of the units were in the city of Sheridan. These additions consist of units that were built within the 1970 city limits of Sheridan and of units that have been added on land annexed by the city. Of the remaining 1,869 units constructed between 1970 and 1980, 121 were added in Dayton, 160 were added in Ranchester, and 1,588, or 39 percent, of the county's new units were added in Story, Clearmont, or other unincorporated rural areas. Most of this growth has occurred in the form of dispersed development or rural subdivisions in the greater Sheridan area.

#### Housing demand conditions

Demand for housing units in Sheridan County rose rapidly between 1970 and 1976 because of coal-related activity in Sheridan County and Montana. However, as coal-related in-migration and growth began to taper off after 1979, so did housing demand. High mortgage interest rates since 1979 have also served to depress housing demand, particularly for more expensive single-family detached homes.

Three characteristics of Sheridan County housing demand are particularly important because they will continue to affect demand throughout the forecast period. First, the higher disposable incomes and smaller family sizes of new in-migrants in coal-related activities have stimulated demand for new housing and have caused a decrease in average household size. Between 1970 and 1980, the size of new households in the city of Sheridan averaged 1.7 persons. This trend helped decrease the county's average household size from 2.59 in 1970 to 2.33 in 1980. (Sheridan County Growth Management Plan 1980.)

Second, the new residents of Sheridan County have demonstrated their willingness to live in rural areas and in small communities such as Dayton, Ranchester, and Story, which are further from coal-related activities in northern Sheridan County and Montana than the city of Sheridan. This willingness to commute longer distances to find small town or rural lifestyles should continue to disperse housing demand throughout Sheridan County.

TABLE 3.6.2.3-1

Housing Units by Type  
Sheridan County  
1970 and 1980

Type of Unit	1970	1980	Change 1970 to 1980		
			Number of Units	Percent of change year-round	Percent 1970-1980 Growth
Total Housing Units	6,893	10,928	4,035		58.5
Year-round Units	6,799	10,295	3,496	100.0	51.4
Single-family	5,528	6,934	1,406	40.2	25.4
detached	1,023	2,138	1,115	31.9	109.0
Multifamily			975	27.9	393.1
Mobile Homes	248	1,223			

Sources: U.S. Department of Commerce, Bureau of the Census, Detailed Housing Characteristics for Wyoming, 1970, 1980.

Third, the rapid growth in Sheridan County housing demand has not been without a low income component. Local officials have indicated that demand for lower-priced single and multifamily units has been high and was only satisfied in the later 1970s and early 1980s. The lag in a supply response was attributed to local builders' preference to construct more expensive, higher-income housing while demand for those types of units was present in the early 1970s. (Cochran, personal communication, October 1982.)

A final determinant of housing demand is the availability and terms of mortgage financing. Sheridan County's banks are concentrated in Sheridan and have been responsible for about 75 percent of all mortgage loans in the county. Most of these loans have in turn been sold to mortgage bankers in Casper, Cheyenne, Denver, and Salt Lake City. The other 25 percent of the mortgage loans have been placed directly with nonlocal mortgage bankers or with the Farmers Home Administration (FmHA). Current interest rates in Sheridan County are about 13.5 percent for conventional loans and about 12.5 percent for FmHA loans. (Carrol, personal communication, October 1982.)

#### Housing supply conditions

This section reviews government policy and regulations, land availability, and housing conditions and then assesses the capacity of local builders to produce housing units. A final subsection describes the county's temporary lodging facilities which could be used to accommodate increased demand for temporary housing.

Government policies and regulations. Residential development in Sheridan County is governed by the county's land use plan and by the community development plans of individual communities. Zoning regulations are in effect only within the city of Sheridan. The county's overall residential development goal is to channel new housing into existing communities. The county discourages residential development along the foothills of the Bighorn Mountains. In recent years, this policy has been highly effective, as much of the new residential growth has occurred adjacent to Sheridan in recent annexations where water and sewer service are available. Growth in these areas has been subject to the city's zoning regulations and building codes. Because the city and county planning and city building inspection agencies have long been prepared for higher levels of residential growth and are currently operating well below their processing capacities, they are not likely to constrain housing development in the future.

Land availability. Land is available for residential development in all of Sheridan County's major communities. In the city of Sheridan, most of the available lots have been built upon. However, the willingness of the city to annex land to the west and south should ensure a constant supply of land where new housing development may be quickly connected to city services. The growth of Sheridan could be constrained to the north and east, however, by the new sewage treatment facility, U.S. I-90, and the reluctance of one major landowner to have the land developed. The only other land constraints in the Sheridan area are due to the flood plains along the Big Goose, Little Goose, and Tongue rivers.

Housing conditions. Data on housing conditions in Sheridan County are available from two sources. A 1979 survey of housing conditions in unincorporated areas found that 94 percent of the 2,999 units surveyed were classified as "standard." The 169 units classified as "substandard" consisted of units that were (1) in need of minor or major repairs that should be rehabilitated and (2) dilapidated units that should be removed. This 1979 survey did not include units in the city of Sheridan. (An Update of the Comprehensive Plan for Sheridan County 1981.) The U.S. Census provides data on age of housing units, but not specifically on housing conditions. In 1980, 26 percent of the county's existing year-round units had been built after 1975 and another 8 percent had been built between 1970 and 1974. Twenty percent of the housing units were built in the 1950s and 1960s, and the remaining 46 percent were built before 1950.

Developers and builders. Throughout the 1970s, most of Sheridan County's residential construction was handled either by local contractors or by nonlocal contractors who moved to Sheridan and still maintain their offices there. Although nationally depressed conditions in the housing industry have forced some of these contractors into carpentry and remodeling work, local officials are confident that materials and finance for development would be readily available if demand for housing were to increase. Local officials estimate that Sheridan County's developers and builders could construct about 500 units per year under such conditions of strong demand. This level of construction appears reasonable given the pace of building during the 1970s, which averaged 394 units per year and exceeded 500 in several years. The 500 per year rate could be increased if additional nonlocal builders moved to the area or if a greater proportion of new units were mobile homes.

Development finance. Local builders and developers with viable projects have not had difficulty obtaining construction financing through local banks. In many cases, local banks have sold local construction loans to outside lenders. Hence, the working relationships already established between nonlocal lenders, local banks, and local builders and developers should ensure the availability of construction finance should housing demand increase.

Construction labor. During the 1970s, some workers left the Sheridan residential construction industry for more highly paid construction positions with mines in Wyoming and Montana. However, other local construction workers resisted the temptation to move to the more highly paid mine construction jobs because of their temporary nature, the commuting distance, and the Montana income tax, which served to reduce the wage differential between the two sectors. Overall, however, there was a slight shortage of residential construction labor in Sheridan County in the early and mid-1970s. Local contractors expect that accelerated mine construction would reduce local labor supplies, but are confident that construction labor could be drawn from other economic sectors and geographic areas. Hence, the availability of construction labor does not appear to be a constraint to future residential development in Sheridan County.

Temporary lodging facilities. Sheridan County has two types of facilities that could accommodate increased demand for temporary housing: hotel/motels and campgrounds. The magnitude and duration of demand for such facilities would depend on many factors which include the availability of permanent housing, income, and the occupant's expected length of stay. In October 1982, the Sheridan Chamber of Commerce listed 12 hotels and motels with a total of 417 units. However, according to a Chamber of Commerce estimate, the recently completed 242-unit Holiday Inn and 13 other smaller motels not listed by the Chamber with at least another 200 units bring the total to at least 859 rooms. Overall, these hotel and motel units are about 90 percent occupied during June, July, and August and about 40 percent occupied during the remainder of the year. The county's five commercial campgrounds with 117 trailer and 85 tent spaces could accommodate additional demand. The availability of these spaces fluctuates seasonally.

Housing market conditions. Previous sections have portrayed demand and supply conditions and described the rapid growth in housing stock that took place in Sheridan County during the 1970s. This section presents a brief summary of market conditions as of October 1982, focusing on prices, occupancy status, vacancy rates, and the availability of residential lots.

Housing prices. Due to national trends in interest rates, housing prices in Sheridan have remained relatively constant since 1980. As prices do not vary much by location, they are presented here on a county-wide basis.

New single-family detached houses with 1,500 sq. ft. of space, garage, and basement currently sell for about \$80,000 to \$85,000. Older single-family detached units with the same characteristics are selling for about \$75,000. Smaller, government subsidized single-family units are selling for about \$50,000 to \$55,000. Modular or "factory-built" housing sells for slightly less, but very little of it is currently being constructed in Sheridan County. (Carroll, personal communication, October 1982.)

Condominium and townhouse units range in size and price from \$45,000 to \$70,000. Rent for these and for two-bedroom apartment units averages about \$375 per month. Mobile homes are selling for about \$25,000 to \$30,000, with pad rentals in established parks averaging \$125 per month.

Occupancy status and vacancy rates. In 1980, approximately 72 percent of Sheridan County's housing units were owner occupied and 28 percent were renter occupied (U.S. Census 1980). If housing demand were to increase without an adequate supply response, people who own houses might face increased incentives to sell their homes, but would otherwise remain unaffected. However, renters of existing units would very likely face increased rental rates under such conditions. Those seeking to establish a new owner-occupied household would likely face decreased availability and increased price.

Sheridan County currently has an abundant supply of housing units for sale. These units include houses that are genuinely for sale and other whose owners are just "testing the market." The best indicator of units for sale in Sheridan County is found in the Sheridan County Listing Exchange (multiple listings), which notes that 249 Sheridan single-family units, 65 rural single-family units, 22 condominium and townhouse units, and 20 apartment units were sold in the first nine months of 1982. The local vacancy rate for rental units was about 5 percent in October 1982.

The residential growth of the 1970s did cause some shortages of housing for the elderly and low-income persons. However, construction of low-income units has proceeded in the late 1970s and early 1980s, and the 105 units completed in fiscal 1982 have alleviated the shortage of this type of housing.

Lot prices and availability. Prices for developed lots (with sewer and water facilities) average about \$12,500 for an 8,500 sq. ft. lot in Sheridan and about \$18,000 for an undeveloped two-acre lot in rural areas. Larger residential lots are available in rural areas for about \$4,000 to \$6,000 per acre.

As of February 1982, there were about 560 available lots in the city of Sheridan, concentrated primarily in ten new subdivisions (Sanders, personal communication, 19 October 1982). In the greater Sheridan area, which includes Big Horn and the area to the west and south of Sheridan, there were 29 platted subdivisions with about 860 lots in October 1982. (Centennial Engineering, personal communication, October 1982.) The extent to which these lots are developable or actually for sale is unknown, but many of these lots are not currently being marketed. In the rest of the county, including Ranchester and Dayton, there are eight subdivisions with about 310 lots. Of these, 142 lots are located in the Country Club of the Bighorns and may not be within financial reach of many members of the local population.

#### 3.6.2.4 Facilities and Services

The public facilities and services operated by Sheridan County include the following:

- 1) General government
- 2) Engineering and planning
- 3) Sheriff
- 4) Fire
- 5) Hospital
- 6) Human services



- 7) Library
- 8) Recreation and parks
- 9) Senior citizens
- 10) School districts nos. 1 and 2 (see Section 3.6.2.6)

#### General government

The general government functions of Sheridan County include those performed by the county commissioners office, county assessor, clerk and recorder, county court, treasurer, clerk of district court, county attorney, courthouse, water commissioner, and agricultural agent (Rudolph, personal communication, October 1982).

The existing county courthouse was constructed in 1904; it contains 18,400 sq. ft. The building has undergone no major renovation since its original construction. A new courthouse of 53,670 sq. ft. is currently being constructed for an estimated total cost of \$5 million.<sup>1</sup> The new building is scheduled for completion in 1983. The new building will continue to house the same functions. (Rudolph, personal communication, October 1982.)

The old courthouse will be renovated utilizing revenues from the one-percent optional sales tax (approved by Sheridan County voters on 2 November 1982) generated during 1983 and 1984. The renovated building is scheduled to house planning and engineering, probation and parole, the courtroom, the agricultural extension service, and the water department. The estimated cost of the renovation is \$1.5 million; work is scheduled to begin in 1983. (Rudolph, personal communication, October 1982.)

Personnel for general government functions have remained steady for the last three years, increasing to 91 in FY 1983<sup>2</sup> from 90 in the two previous fiscal years (Rudolph, personal communication, October 1982).

Operations and maintenance costs for the existing courthouse from FY 1981 to budgeted 1983 have been \$46,597, \$60,970, and \$96,826, respectively. A substantial portion of the FY 1983 budget increase is due to the addition of the new courthouse. (Rudolph, personal communication, October 1982.)

#### Engineering and planning

The county engineer is responsible for Sheridan County roads and bridges and for septic tank permits and inspections. The county system has a total of 566 miles of roads; 16 miles are paved, 445 miles are gravelled, 80 miles are graded and drained dirt roads, and 25 miles are primitive rights-of-way. Additionally, there are about 250 miles of subdivision roads that have been dedicated to the public but are not maintained by the county. (Hollingsworth, personal communication, November 1982.)

The county has fifty-nine bridges that meet the federal and state definition of a bridge (twenty-foot span inside to inside at abutments); additionally, there are seventy bridge/culverts with spans between six and eighteen feet and ten railroad crossings. Of the fifty-nine bridges, fifty-four need replacement or major renovation. The majority of the other seventy bridge/culverts also need extensive attention. A

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<sup>1</sup>Cost estimate includes land for parking, furnishings and equipment, landscaping, and demolition of old buildings.

<sup>2</sup>1 July 1982 through 30 June 1983.

combination of a sufficiency rating and traffic counts are used to determine priority for repair and replacement of bridges. Three bridges are scheduled for replacement in FY 1983 at an estimated cost of \$400,000. Fifty percent of this cost has been obtained from a Farm Loan Board grant. (Hollingsworth, personal communication, November 1982.)

The road and bridge department constructed a new, 9,600 sq. ft. shop in 1976, which it has already outgrown. The 1976 shop is supplemented by a six-stall old shop, used mostly for storage and sign painting. There are no immediate plans to expand shop facilities. (Hollingsworth, personal communication, November 1982.)

The county has eleven pickup trucks, eight motor patrol vehicles, six dump trucks, and twelve pieces of equipment such as tractors, backhoe, mower, and so on. Most pickup trucks are purchased used; none have been purchased in the last two years. In 1981, a new ten-yard dump truck was purchased for \$50,000 and a used 1968 watering truck was purchased for \$23,000. In 1980, a new ten-yard dump truck was purchased for \$43,753. The county engineer has started a record-keeping system for each piece of equipment to determine operating costs and to establish a routine equipment replacement program. (Hollingsworth, personal communication, November 1982.)

The county engineer also inspects and issues permits for septic tank systems for single-family dwellings. This responsibility was delegated by the state in 1981. Eighty-two inspections were made in 1981 and sixty-five have been conducted in 1982. (Hollingsworth, personal communication, November 1982.)

There are nineteen persons employed by the county engineer's department, sixteen work at the county shop, and three are located at the county courthouse. The number of department personnel has been steady for the past several years. (Hollingsworth, personal communication, November 1982.)

The total budget for the county engineer in FY 1983 is \$943,996, which includes about \$58,000 for a special recreation project and \$312,000 for capital improvements. Budgets for FY 1981 and FY 1982 were \$477,143 and \$611,015, respectively. (Hollingsworth, personal communication, November 1982.)

There has been no road or bridge construction during the past three years; however, ten miles of asphalt chip and seal were completed in July 1982 at a cost of \$75,500 (about one-third of the material was furnished by the county), and in May 1981, three miles of road were renovated<sup>1</sup> at a cost of \$197,400 (Hollingsworth, personal communication, November 1982).

The county planning function is carried out primarily by the county grantsman/planner. The planning function is strongly related to the capital development/planning and improvement process. There is an established monitoring/update program for capital improvement needs for all jurisdictions in Sheridan County. The county has placed a major emphasis on capital improvement programs and many projects have been accomplished in recent years. Since the beginning of 1976, \$16,473,861 in grants have been obtained for the county, city of Sheridan, Ranchester, Dayton, Clearmont, and the county rural fire districts. Citizen approval of the optional one-percent sales tax contributed to the highly successful grant program by demonstrating to those reviewing grant applications that local citizens are willing to tax themselves to achieve the requested capital improvements. (Jayne, personal communication, November 1982.)

The county currently has no zoning or building permit process; subdivision proposals, however, do go through an approval process with the County Planning Commission and the county commissioners. The county is in the process of establishing land use controls (zoning), and subdivision regulations are in place.

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<sup>1</sup>Improved vertical and horizontal sight; base course, prime and double chip seal; and some earth and ditch work.

The septic tank permit discussed earlier in this section is the only permit requirement in the county at this time. (Jayne, personal communication, November 1982.)

### Sheriff

The sheriff serves the entire county with the exception of the city of Sheridan. The incorporated towns of Ranchester and Dayton contract with the sheriff for police protection; each pays \$6,900 per year to the county for this service. A new law enforcement facility funded jointly by the city of Sheridan and Sheridan County was completed in 1982. The county sheriff moved into the new facility in December 1982. The move facilitates the coordination/exchange of dispatching (city responsibility) and jailing (county responsibility) between the city police of Sheridan (who moved into the facility in July) and the county sheriff. (Johnson, personal communication, October 1982.) The new building is 20,000 sq. ft. and includes space for administration, jail facilities, parking garage, and support for both city and county. The new building cost about \$2,480,000; the county contributed \$1,580,000 and the city contributed \$900,000 from receipt of the one-percent county-wide optional sales tax. It has a total of fifty jail cells that are a combination of minimum, medium, and maximum security. (Johnson, personal communication, October 1982.)

Department staff includes one sheriff, one undersheriff, ten deputies, five dispatchers/jailers, and two office personnel, for a total of nineteen people. The staff was increased to this level in November 1982; previously, there were two fewer deputies. In December 1982, the staff was increased by five jailers, for a total of twenty-four personnel. Additional personnel are needed -- one resident deputy each in Clearmont/Arvada, Ranchester/Dayton, and Big Horn/Story, and two more jailers at the new law enforcement facility. Two additional vehicles are also needed. (Johnson, personal communication, October 1982.)

Currently, the sheriff has four sedans and one two-year-old four-wheel drive vehicle that is used mostly for search and rescue missions. Four new sedans are being delivered in November 1982; three of the old sedans will be traded in and one will be kept for spare use. (Johnson, personal communication, October 1982.)

Approximately 70 to 75 percent of Sheridan County's "police" calls originate within five miles of the city of Sheridan. In 1980, there were 1,050 arrests and 2,033 civil papers served; in 1981 there were 1,596 arrests (a 66 percent increase over 1980) and 2,199 civil papers served (a 9.1 percent increase over 1980). In 1980, the average daily prisoner population was nine; in 1981 it was eleven. The expanding unemployment created by personnel reductions at the Spring Creek and Decker area coal mines was considered a factor in recent crime increases. Tourists were generally not considered a problem, although occasionally assistance was required to find lost hunters. (Johnson, personal communication, October 1982.)

The budgets for the jail and sheriff were combined for the first time in FY 1983 for a total budget of \$538,268. The sheriff's operating portion (excluding capital improvements) of the total budget for FY 1983 is \$363,859. In FY 1982 it was \$249,308 and in FY 1981, \$240,437. (Johnson, personal communication, October 1982.)

### Fire

Sheridan County operates a countywide fire department. In addition, the city of Sheridan has a fire department, and there are five, small, rural fire districts (RFD) in the county which protect the urbanized areas of Big Horn, Story, Clearmont, Dayton, and Ranchester. The county fire department and the five RFDs have verbal, mutual aid agreements; ISO ratings are ten. The county has a written, mutual aid agreement with the city of Sheridan. (Frith, personal communication, November 1982.)

The county fire department has four full-time personnel; a fifth person is authorized in the FY 1983 budget but had not been hired at the time of the study. Personnel levels have remained constant over the last three years. (Frith, personal communication, November 1982.)

The county's fire-fighting equipment includes the following:

- 1) 1976 pumper (4WD, 250 gpm pump, 300 gallon tank -- \$37,000)
- 2) 1975 pumper (4WD, 1,000 gpm pump, 500 gallon tank -- \$58,000, purchased new)
- 3) 1975 crash truck (\$35,000, purchased new)
- 4) 1967 tanker (1,200 gallon)

The fire equipment is housed in a four-bay fire station at the airport. The original building was constructed in 1960 and consisted of two bays with living quarters for one person. In 1978, the building was expanded to four bays and living quarters for four persons. The expansion cost \$120,000 in 1978. The total space in the building is about 3,200 sq. ft. The space is adequate and there are no plans for expansion at this time. The county has acquired two acres of land west of town should another station be needed. (Frith, personal communication, November 1982.)

Communication/dispatch is handled by the sheriff's department, but will soon be transferred to the city police department under a cooperative agreement to share jailer and dispatch responsibilities (Frith, personal communication, November 1982).

The county averages about 150 service calls per year. Approximately 60 percent of the calls are wild-land grass fires, 30 percent are structure fires, and 10 percent are gas spills, vehicle fires, or false alarms. (Frith, personal communication, November 1982.)

The county assists the RFDs by coordinating grants and assisting with major capital purchases and development. In 1978, a grant for \$600,000 was obtained from the Economic Development Administration; the grant funds were used to build new fire stations in Clearmont and Arvada and to renovate stations at Story and Big Horn. In 1981, a 50 percent matching grant was obtained from the Farm Loan Board to purchase new fire trucks for all RFDs. (Frith, personal communication, November 1982.)

There are no additional needs for equipment or paid personnel, although better coverage of the county areas not serviced by the RFDs is desirable. (Frith, personal communication, November 1982.)

#### Hospital

The Memorial Hospital is a political subdivision and is organized as a nonprofit governmental agency. The hospital primarily serves residents of Sheridan County but also treats patients from Johnson and Campbell counties and from Montana. Additionally, the hospital provides emergency medical back-up services for the IHS hospital in Crow Agency. (Porter and McClain, personal communication, October 1982.)

As of September, 1982 approximately 65 percent of the admissions and outpatient visits to the Memorial Hospital had been from the city of Sheridan with 5 percent from Montana and the remainder mostly from Sheridan, Johnson, and Campbell counties. In 1981, the hospital averaged 186 admissions per 1,000 county residents. (Porter and McClain, personal communication, October 1982.)

The hospital has ninety-seven beds, including eight intensive care, fourteen obstetrics, and six pediatrics. The average occupancy rate in 1982 was about 55 percent. The occupancy rate has been declining due to a shorter average length of stay (four days) rather than declining admissions. (Porter and McClain, personal communication, October 1982.)

The staffing level of the hospital has remained fairly constant over the last three years: 247.8 full-time equivalents in FY 1981, 249.8 in FY 1982, and 251.8 in FY 1983. The number of doctors, nurses, and LPNs has remained constant at 37, 46, and 11, respectively, over the last three years. Specialists are available in internal medicine, gynecology, pediatrics, surgery, urology, ophthalmology, ENT, and pathology. An increase in the staffing level by up to 20 persons is anticipated with the expansion of the facility, described below. (Porter and McClain, personal communication, October 1982.)

Memorial Hospital is in the midst of a \$4.5 million expansion that includes four operating rooms, a urology room, a new boiler plant, laundry, and relocation of some departments. Completion of this expansion is scheduled for 1984. The new expansion contains 38,840 sq. ft. Construction costs are \$3,474,200, or \$89 per sq. ft.; the other million dollars is for architect fees, financing, equipment, and contingencies. The hospital secured a 50 percent grant and a 50 percent loan from the Farm Loan Board for the expansion currently in progress. The loan will be repaid from the hospital's endowment fund, currently yielding \$300,000 revenue annually. The hospital has no bonded indebtedness. (Porter and McClain, personal communication, October 1982.)

The last capital improvements to the hospital were made in 1977 and 1979 when an emergency room and intensive care unit were added. This addition totaled 16,000 sq. ft.; construction costs were \$945,160, or \$59 per sq. ft. (Porter and McClain, personal communication, October 1982.)

Sheridan County citizens approved a \$476,000 equipment purchase package with passage of the optional one-percent sales tax in November 1982 (Porter and McClain, personal communication, October 1982.)

#### Human services

Sheridan County's Division of Public Assistance and Social Services (D-PASS) is a division of the state's Department of Health and Social Services and serves all of Sheridan County. Services rendered by D-PASS are broad ranging. Public assistance programs include, but are not limited to, food stamps, financial help, aid to families with dependent children, low-income energy assistance, and eligibility determination for Medicaid. Social service programs include, but are not limited to, adoption, family planning, investigative services for child protection, and homemaker services for the elderly and disabled. (Paine, personal communication, November 1982.)

D-PASS moved to a new location in early 1983 where they have 3,400 sq. ft., an amount that is considered adequate to meet current needs. Rent, which is not included in Sheridan County's operating budget because it is paid directly by the state is \$3,400 per month. (Paine, personal communication, November 1982.)

The current staff totals thirteen persons: a director, three clerical personnel, one fiscal control technician, three public assistance personnel, and five social service personnel. The staffing level has remained constant over the last three fiscal years. The director indicated that one additional public assistance staff member is needed (\$1,500-\$2,000 per month). (Paine, personal communication, November 1982.)

The current case load is about 800 open cases per month: 590 public assistance and 203 social service cases. The case load, according to the director, has been increasing steadily at about 10 percent per year. In 1982, however, the public assistance case load increased more than 10 percent due to high unemployment. Additionally, the administrative requirements in the last year have increased, causing additional workload. (Paine, personal communication, November 1982.)

The budgets for FY 1981 to 1983 are for D-PASS and are shown in Table 3.6.2.4-1. They do not include energy grants to low income persons requiring assistance with utility bills.

TABLE 3.6.2.4-1

Budget for Division of Public Assistance and Social Services  
 Sheridan County, Wyoming  
 FY 1981-83

	FY 1981	FY 1982	FY 1983
Personnel	\$238,837	\$258,134	\$330,916
Administration	14,261	14,571	14,562
Case Service	623,603	730,303	753,488
Cost Allocation	36,883	44,571	24,655
TOTAL	\$913,584	\$1,047,579	\$1,123,621

Source: Mary Paine, Director, Division of Public Assistance and Social Services, State of Wyoming, Sheridan County, 3-4 November 1982.

## Library

The Sheridan County Fulmer Public Library services all of Sheridan County. Some residents of Montana also use the library. The Sheridan County Library operates as a department of county government. (Meister, personal communication, November 1982.)

The main library is located in Sheridan and branch libraries are located in Story, Clearmont, and Ranchester. The main library of 13,700 sq. ft. was constructed in 1973. In 1982, it contained about 55,000 volumes and had 295 magazine subscriptions. The library purchases between 3,000 and 4,000 new volumes annually at an average cost of \$20-25 each. A 10,000 sq. ft. expansion of the main library is planned. An adjacent lot with existing structure purchased in 1981 for \$76,000 will be used for the expansion. Construction costs of \$85 per sq. ft. and furnishing costs of \$15 per sq. ft. are being used for planning purposes. The construction budget is \$1,528,000. Funds will be obtained from the optional one-percent sales tax. (Meister, personal communication, November 1982.)

Services offered by the library are varied and extensive. In addition to the book lending services, the library provides or sponsors (1) a children's library program, (2) the Inner Circle Theater for children's activities and community meetings, (3) a Vision Van for visually impaired citizens, (4) outreach programs, mostly sponsored by grants from the National Endowment for Humanities, (5) in-house programs featuring themes such as ranching and Indian awareness, and (6) an annual Renaissance Fair, attended by 5,000 people in 1982. (Meister, personal communication, November 1982.)

Table 3.6.2.4-2 shows that personnel have remained fairly constant for the library system over the last three years. The librarian expressed a need for 1.5 additional personnel and feels that this staff-level can also handle the library expansion.

The budget for the library system for the last three fiscal years is also shown in Table 3.6.2.4-2.

## Recreation and parks

The county does not operate a park and recreation department but does support the county fairgrounds (a multifunctional recreation complex). The county is considering the development of a regional recreation complex. (Ketcham, personal communication, November 1982.)

The fairgrounds are located on forty acres in the city of Sheridan. The original grandstands were built in 1902 and were expanded to a capacity of 5,500 in the 1930s. Fairground facilities include a horse racetrack, rodeo chutes, stables, two county shop buildings, a building housing a gun club, a caretaker residence, and a multipurpose building for fair displays and a rollerskating rink. Programs and activities conducted on the fairgrounds include four annual rodeos (youth, high school, professional, and county), a youth fair, pet show, horse show, carnivals, circuses, trap and skeet shooting, archery, outdoor ice skating, motorized snow sports, and indoor rollerskating. (Ketcham, personal communication, November 1982.)

The county has been searching for a new location for the fairgrounds since 1977. The current site is too small, the grandstands need to be replaced, the race track is too small for sanctioned races, and additional parking is needed. However, to date, either the land has been too expensive or the cost of extending utilities has been too high. The search for a new site continues. (Ketcham, personal communication, November 1982.)

The county does have a long-term lease on 560 acres from BLM about 3.5 miles from Sheridan. Although plans to move the fairgrounds to this location have been abandoned due to utility extension costs, the site is still intended for less intense development, including shooting (trap, skeet, bore rifle, shotgun,

TABLE 3.6.2.4-2

Personnel and Budgets  
 Sheridan County Fulmer Public Library, Wyoming  
 FY 1981-83

Community	Personnel		
	FY 1981	FY 1982	FY 1983
Sheridan	12	12.5	14.5
Ranchester	.5	1.5	1.5
Clearmont	.5	.5	.5
Story	.5	.5	.5
	Budgets		
Sheridan	\$260,392	\$297,556	\$316,563
Ranchester	4,136	19,701	23,930
Clearmont	4,826	9,530	7,450
Story	5,423	8,660	7,815
TOTAL <sup>a</sup>	\$274,777	\$335,447	\$355,758
	\$35,000	\$40,000	\$40,000

Source: Alice Meister, Sheridan County Fulmer Public Library, personal communication, 4 November 1982.

<sup>a</sup>Includes the cash reserve amount of \$35,000, \$40,000 and \$40,000 for FY 1981, 1982, and 1983, respectively.



and pistol), archery, and horseback-riding trails. Motorcycle sports will probably be included at a later date. Initial development of \$100,000 is scheduled for 1983; \$50,000 from a Wyoming Recreation Commission grant and \$50,000 from the county. (Ketcham, personal communication, November 1982.)

### Senior citizens

A relatively high percentage of the county's population is sixty years of age or over. The 1980 census shows that 16.5 percent of Sheridan County residents were in this age category and that 18 percent of the population of the city of Sheridan was over sixty years old.

The Senior Citizen's program is a countywide operation cooperatively supported by fees and the city of Sheridan, Sheridan County, state and federal funds. The organization is private and nonprofit.

A comprehensive program for senior citizens is offered, including:

- 1) Meals, served at the center four days a week (140 per day). Additionally, meals are served at two other locations in Sheridan, in Ranchester, and through the meals-on-wheels program (52 per day). Total average meals served per day is 301, countywide.
- 2) Transportation services throughout Sheridan County, provided by three vans (1978, 1979, and 1981 models) and a contracted transport service in the Clearmont-Arvada area. Two vans were purchased with revenue sharing funds and one was purchased from fund drive receipts. The 1979 van is soon to be traded in for a new van with a wheelchair lift.
- 3) Outreach.
- 4) Telephone reassurance.
- 5) Recreation programs, usually sponsored by various community organizations or through agreements with the park and recreation department and YMCA.
- 6) Information referral.
- 7) Housing referral to help seniors find places of residence and to administer 24 housing units (on contract with the state).
- 8) Employment referral.
- 9) Homemaker and chore service.
- 10) Reading, letter writing, and friendly visiting.
- 11) Health services, including annual glaucoma and periodic blood pressure checks.

In 1980, the Senior Citizen's Center was completed. It contains slightly less than 8,000 sq. ft. and was constructed for \$485,000. Funds came from the city's optional one-percent sales tax. Additionally, a grant for \$130,000 was obtained from FMHA to purchase the land. In 1983, the parking lot will be expanded to accommodate up to fifty-five additional cars. The land acquisition and parking lot development costs are estimated at \$157,000. Revenues from the optional one-percent sales tax are being earmarked for this project. There are no other immediate plans for expansion. The building is currently at capacity, particularly the dining facilities.

The program's staff consists of twenty-seven people, the equivalent of fifteen full-time personnel. The staffing level and budget have remained fairly constant during the last three years. Total budget for FY 1983 is \$411,043. (Dixon, personal communication, November 1982.)

### 3.6.2.5 Fiscal

#### Financial profile - Sheridan County

Table 3.6.2.5-1 provides financial data on Sheridan County for FYs 1981, 1982, and 1983. The following discussion is an analysis of the county's current financial status so that conclusions may be drawn regarding its ability to handle future growth.

TABLE 3.6.2.5-1

Financial Profile  
Sheridan County  
FY 1981-1983

Item	FY 1981 (Audited Amounts)	FY 1982 (Actual or Estimated)	FY 1983 (Budgeted)
Resources			
Population			
Assessed Valuation			
Total	25,025	26,200	27,000
A.V. per Capita			
Revenue per 1 Mill	\$124,751,478	\$142,593,419	\$135,158,107
Countywide Taxable Retail Sales <sup>b</sup>	\$4,985	\$5,442	\$5,006
One percent Sales Tax Per Capita	\$124,751	\$142,593	\$135,158
Federal Revenue Sharing Receipts	\$156,158,406	\$162,973,007	
	\$66	\$62	
	\$91,038	NA	\$273,147
Tax Rates			
Sales and Use Tax Rate			
State	3%	3%	3%
Optional one percent	1%	1%	1%
Share of Total Sales Tax <sup>c</sup>	35%	35%	33%
Property Tax Rates			
General Purpose	12.00 mills	12.00 mills	12.00 mills
Special Purpose	7.11 mills	7.51 mills	7.26 mills
Debt Service (Airport)	4.89 mills	4.49 mills	3.74 mills
	0.64 mills	0.52 mills	0.99 mills

TABLE 3.6.2.5-1 (cont.)

Financial Profile  
Sheridan County  
FY 1981-1983

Item	1981		1982		1983	
	(Audited Amounts)		(Actual or Estimated)		(Budgeted)	
General Fund Position						
Starting Cash Balance	\$1,992,344		NA		\$2,160,030	
Current Revenues						
Property Tax	\$88,983	(32%)	\$1,071,019	(28%)	\$1,115,747	(28%)
Sales and Use Tax <sup>d</sup>	\$696,055	(25%)	\$1,255,250	(32%)	\$940,665	(24%)
Severance Tax	0		\$535,719	(14%)	\$535,719	(14%)
PILT & Revenue Sharing	\$353,280	(13%)	NA		\$473,147	(12%)
Interest Income	\$176,337	(6%)	\$237,814	(6%)	\$237,144	(6%)
Other Local (fees, etc.)	\$387,226	(14%)	\$348,604	(9%)	\$435,043	(11%)
Nonlocal	\$284,018	(10%)	\$429,075	(11%)	\$209,378	(5%)
Total Expenditures <sup>e</sup>	\$3,391,213		\$5,994,102		\$5,942,962	
Expenditures per Capita	\$135.51		\$228.78		\$220.11	
Percent for O & M	\$2,407,761	(71%)	\$2,277,759	(38%)	\$3,803,496	(64%)
Capital Outlay	\$976,670	(29%)	\$3,687,350	(62%)	\$2,130,896	(36%)
Enterprise Funds (Airport, Hospital, County Fair, Library)						
Starting Cash Balance	\$820,354		NA		\$396,712	
Net Transfers in (Out)	-0-		-0-		-0-	
Revenue Sources Total	\$7,921,792		NA		\$8,145,922	
Property Tax	\$496,670	(6%)	NA		\$505,812	(6%)
Percent of Fees & Charges	\$7,446,485	(94%)	NA		\$7,657,167	(94%)

TABLE 3.6.2.5-1 (cont.)

Financial Profile  
Sheridan County  
FY 1981-1983

Item	1981		1982		1983	
	(Audited Amounts)		(Actual or Estimated)		(Budgeted)	
Debt Status						
Debts Outstanding						
G.O.		\$491,743		NA		\$369,773
Annual Debt Service						
G.O.		\$127,440		NA		\$125,987
Remaining G.O. Capacity		\$2,003,287		NA		\$2,333,389

Source: Sheridan County Budget, 1982-83, Sheridan County, Wyoming.

a1980 population, U.S. Census; 1981, 1982 population estimates from Les Jayne, Sheridan County Planner.

bTotal retail sales in Sheridan County before distribution; calculated from sales tax distributions reported in the Annual Report of the Wyoming Department of Revenue and Taxation, 1980-82.

cRepresents the portion of countywide receipts which Sheridan County itself receives.

d1980 amount includes county share of the state 3 percent tax and tax use. 1981 also includes local option tax; 1982 estimate is less because the local option tax was up for reappraisal in November, thus only half the expected annual amount was budgeted.

eIncludes all county departments, plus federal revenue sharing and capital improvement funds.

Note: NA = not available.

Since the 1980 Census, Sheridan County population is estimated to have grown by about 2,000 to its current level of 27,000 people. Over the same time period, the county tax base has shown little net growth on a per capita basis; a decrease in assessed valuation occurred in 1982 due to state revaluation of public utilities. At an average annual rate of 4 percent, growth in the tax base has not kept up with inflation.

Retail sales on a countywide basis have only grown at an average annual rate of 5 percent since 1980, compared with 8.5 percent average annual inflation. Thus, the total sales tax revenues shared by the county, Sheridan, Ranchester, Dayton, and Clearmont have been flat or slightly declining in constant dollar terms. The optional one-percent sales tax, recently renewed for another two-year period, provides additional revenues that the county will use for capital improvements such as the courthouse expansion.

Sheridan County levies the maximum twelve-mill property tax for general county purposes, plus the library, hospital, airport, and county fair funds. As a percentage of annual general county revenues, property taxes amount to about 28 percent of the total, or about \$1 million. The sales tax, including the county's share of the three-percent and optional one-percent tax, yielded about \$1.25 million in FY 1982, while the severance tax contributed about \$0.5 million. Contributions from the sales tax may be expected to increase if growth occurs, but severance tax revenues are not expected to increase within the next few years (based on projections from the Wyoming Legislative Services Office). Other intergovernmental revenues are not used for general operating purposes. Sheridan County derives about 12 percent of its total revenues from revenue sharing and payments in lieu of taxes, the continuation of which is doubtful. These revenues are used for equipment, purchases, and capital projects. Other nonlocal revenues have declined from 10 percent to 5 percent, showing that the county is not highly dependent on these sources. Interest income on funds currently yields about \$200,000 per year. Over the past three years, cash balances available at the start of the year have run about \$2 million due to the inclusion of funds available from revenue sharing and capital outlay projects.

Expenditures increased significantly from FY 1981 to FY 1982, primarily due to large capital expenditures for courthouse and law enforcement building projects. Total budgeted expenditures for FY 1983 are no higher, but the amount budgeted for operation and maintenance (O & M) was increased, especially in the sheriff's and road and bridge departments. Another \$1.5 million was budgeted for courthouse capital expansion in FY 1983. With the expanded courthouse and public safety buildings, planned road and bridge improvements, and the planned regional recreation complex, Sheridan County will have ample facilities to accommodate growth. Since most of the capital expenditures are being funded now, the incremental costs associated with future growth will probably be exceeded by incremental revenues. However, the annual budget must account for operation costs of the new facilities, once completed.

Sheridan County's resources (tax base) have not grown over the past few years. The county is now building major improvements, which have already been funded. The county cannot depend on a continuation of federal revenue sharing or payment in lieu of taxes, but does not depend on these sources to fund operating costs anyway. Severance tax revenues are not likely to increase over the next few years; these revenues have been used for both capital and operating purposes. The one-percent local option sales tax was passed again to finance the courthouse renovation. The county's existing debt is minimal, and it has the capacity to float \$2.3 million in general obligation bonds, which could provide for capital needs. Since the capital for the planned new facilities has already been funded, costs incurred by moderate levels of new growth will be associated primarily with additional service demands. Unless the tax base expands to provide for service needs induced by growth, the county resources may not generate offsetting revenues sufficient to meet growth-related costs.

### 3.6.2.6 Schools -- Facilities/Services and Fiscal

The study area is served by three school districts. As School District No. 3 has not and will not be affected by the proposed projects, it is not discussed in this report.

## Facilities/services

Introduction. School districts in Wyoming are consolidated. They meet most of their operational costs through three sources of levied tax revenues: school district taxes, county taxes, and state taxes. Levels of funding are based, to some extent, on the Wyoming School Foundation Program, which ensures a minimum base level of funding for all school districts. The minimum base level is currently \$37,300 (set by the Legislature) per classroom unit (CRU). Added to this amount are other costs such as transportation and special education. These total educational costs are then funded from a combination of local resources and state equalization funds. State entitlement funds are the total foundation costs less local resources. Local resources for a particular school district are a sum of:

- 1) The district's share of the twelve-mill countywide school tax (based on ratio of CRUs to the county total). The recently approved constitutional amendment will reduce the countywide school tax levy to six mills but will increase the statewide school tax levy from six to twelve mills.
- 2) The district's qualifying levy. A district must levy at least ten mills to be eligible for state equalization funding. A district may levy up to twenty-five mills at the board's discretion and up to twenty-eight mills with voter approval. Currently, these levies are retained by the school district. Approval of the constitutional amendment means that up to seventy-five percent of revenues generated by a school district levy which exceed the state's average yield per average daily membership (ADM) may be "recaptured" by the state for redistribution to other districts through the foundation program.
- 3) Other local sources of school district income may include land income, fines and forfeitures, forest reserve funds, Taylor Grazing Act receipts, motor vehicle fees, and tuition.

School District No. 1. This district covers the western portion of Sheridan County. Facilities include the Big Horn Elementary (K-6) School and Big Horn High School in Big Horn, the Tongue River Elementary (K-6) School in Ranchester, the Tongue River High School in Dayton, and the Slack Elementary School in Pass Creek. A description of each school follows; however, the budget information relates to the entire school district. (Cobb, personal communication, November 1982.)

District-wide, in 1981-82, there were eighty-five teachers and forty-nine support staff, for a ratio of 1.73 teachers to support personnel. In 1981-1983, there were 92 teachers and a support staff of 49, for a ratio of 1.88 teachers to support personnel. (Principals, school secretaries, and teacher aides are included in with the teachers.) (Cobb, personal communication, November 1982.)

- 1) The Big Horn Elementary School in Big Horn has seven classrooms, one room for each grade. The new school was occupied in 1979. It was planned in the open concept and has portable walls for flexibility in adjusting classroom sizes. Classrooms were intended to accommodate twenty-five students each (175 total); however, they are long and narrow in shape, making it difficult to accommodate the maximum. The school was constructed on a limited budget and is short on storage space, so classrooms also must be used for storage. Enrollment, by grade, for the last three years is shown in Table 3.6.2.6-1. Long-term plans are to add additional space, especially for storage, but no definite plans have been made at this time. (Cobb, personal communication, November 1982.)
- 2) The Big Horn Junior/Senior High School facility is currently undergoing an extensive, phased renovation. Phase I, being bid in December 1982, consists of nine classrooms, a media center, industrial arts area, cafeteria, kitchen, and administrative offices. The elementary school gym, across the road, is used for physical education activities. The original facility was constructed in the early 1900s and was added on to in the 1960s. Enrollment has been stable in Big Horn High School. Therefore, the renovation will not result in an expansion of the school. The school can accommodate up to 200 students; the cafeteria and media center are being built oversized to handle growth should it occur. Additionally, most interior classroom walls are portable to allow flexibility of class size. (Cobb, personal communication, November 1982.)

TABLE 3.6.2.6-1

Enrollment by Grade  
 School District No. 1  
 Sheridan County, Wyoming  
 1980 thru 1983

School and Grade	1980-81	1981-82	1982-83
<u>Big Horn Elementary School</u>			
K	21	22	22
1	20	21	22
2	20	23	23
3	27	19	20
4	21	27	20
5	30	16	25
6	22	28	13
Total	161	156	145
<u>Big Horn Junior/Senior High School</u>			
7	28	20	28
8	17	25	21
9	28	17	27
10	28	27	16
11	21	28	22
12	27	16	24
Total	149	133	138
<u>Tongue River Elementary School</u>			
K	30	43	44
1	48	50	44
2	33	42	47
3	53	35	40
4	46	57	35
5	41	48	58
6	35	46	49
Total	286	321	317
<u>Tongue River Junior/Senior High School</u>			
7	29	39	53
8	34	30	49
9	32	39	34
10	34	34	36
11	37	32	30
12	32	42	33
Total	198	216	235

Source: Cobb, Superintendent of Schools, School District No. 1, personal communication, 8 November 1982.

Phase II, not yet designed, will include a gymnasium and music facilities. Phase II will be in active planning after Phase I is completed in June 1984. Enrollment, by grade, for the last three years is shown in Table 3.6.2.6-1. (Cobb, personal communication, November 1982.)

- 3) The Tongue River Elementary School facility in Ranchester was built in 1979 and had ten classrooms. In 1980, an eight-classroom wing was added, and in 1982, two additional modular classrooms were added. It is a flexible building designed in the open concept with portable walls. The school is in excellent condition but is overcrowded. Although there are no plans to expand this school, a new middle school for grades five to eight is planned, which would alleviate the overcrowding. The new middle school will contain about 36,000 sq. ft. and cost an estimated \$2,260,000, including land acquisition. Enrollment at the Tongue River Elementary School by grade, for the last three years is shown in Table 3.6.2.6-1. The teaching staff was twenty-six during the 1981-1982 school year and expanded to thirty during the 1982-1983 school year. (Cobb, personal communication, November 1982.)
- 4) The Tongue River Junior/Senior High School is located in Dayton and is about twenty years old. It is in excellent condition. A new wing was completed in 1982 and contains six classrooms, a music room, two offices (guidance counselor and activities director), janitorial storage, and restrooms. Prior to the addition, there were fourteen classrooms; counting the library and stage, and a gym. There are no plans to further expand this facility because the new middle school will house grades seven and eight, thereby allowing grades nine to twelve to expand in the current facility. The classrooms can accommodate up to 300 students; however, since the core facilities were not expanded, it will be difficult to handle that number of students. Enrollment, by grade, for the last three years is shown in Table 3.6.2.6-1. The school had a teaching staff of twenty-three during the 1981-1982 school year, including principal, teaching aide, and secretary. The staff expanded to twenty-four during the 1982-1983 school year. (Cobb, personal communication, November 1982.)

Land for the new middle school (twenty to twenty-five acres) is now being acquired. It is considered desirable for the middle school (grades five through eight) to be located adjacent to the elementary school in Ranchester so some facilities can be shared. Construction of the middle school is expected to begin in 1983. The school district is at 100 percent of its bonding capacity so it has borrowed in advance of its annual entitlements from the state for thirty years. Additionally, a grant of \$1,026,739 was received from the state. (Cobb, personal communication, November 1982.)

- 5) Slack Elementary School is located in Pass Creek in a one-room building and serves a rural area. In grades one to six, there were twelve students in 1980-81, three in 1981-82, and four in 1982-83. One teacher is assigned to this school. (Cobb, personal communication, November 1982.)

School District No. 2. This district serves the city of Sheridan and has eleven schools in its inventory. Collectively, the elementary school capacity is 2,533, junior high capacity (grades seven to eight) is 700, and high school capacity is 1,200. Additionally, there is capacity for the enrollment of 100 special education students. (Shovlain, personal communication, November 1982.)

The newest elementary school was completed in 1976. Some capital improvements have been made since 1976 with funds coming from the school district's operating budget. For example, the high school shop was remodeled, and two classrooms were added to two other schools. (Shovlain, personal communication, November 1982.)

A bond issue for \$12 million was defeated by school district voters in 1982. The proposed improvements would have included a new elementary school for which a site has been acquired and an additional junior high that would have allowed the district to move the ninth graders to the two junior highs, thus



easing the demand on the high school. Expansion of facilities is still a pressing need; a citizens' committee is currently studying alternatives and will make their recommendation to the school district board soon. (Shovlain, personal communication, November 1982.)

The district currently has an unused (potential) bonding capacity of \$7,141,323. With voter approval this source of funding could be used to improve district facilities. These funds are derived as follows:

1) 1981 assessed valuation	\$122,313,236
2) 10 percent of that valuation	\$12,231,323
3) Minus current bonded indebtedness (6/30/81)	\$5,090,000
4) Unused (potential) bonding capacity	\$7,141,323

The district's annual capital construction entitlement for the 1981-1982 school year will be \$220,075. It is estimated that the district could qualify for as much as \$5,000,000 in advance entitlement money during the 1981-1982 school year, providing it meets the 85 percent bonding requirement. (Wyoming Department of Education 1981-82.)

The schools and their respective student capacities are shown in Table 3.6.2.6-2. District wide enrollment, by grade, for the last three years is shown in Table 3.6.2.6-3

The report completed by the state in 1981 indicates that Sheridan High School had 138 students over its optimum capacity<sup>1</sup> in 1981, Highland Park was over capacity by 116 students, and that Meadowlark, Woodland Park, and Becton schools were operating at capacity. (Sheridan County School District 1982.)

Total personnel at the individual schools for the last three years is shown in Table 3.6.2.6-4.

## Fiscal

School District No. 1. Table 3.6.2.6-5 provides financial data on School District No. 1 for FY 1983 and the past two school years. Conclusions will be drawn regarding the district's financial condition and its ability to deal with future growth.

Although School District No. 1 has had little growth in enrollment, its assessed valuation has increased at an average annual rate of about 17 percent over the past three years. On a per student basis, however, the \$20,200 assessed value is much less than the \$27,500 per student of School District No. 2, which is an indication of the latter's relative wealth. The district is levying its maximum, nonvoted, twenty-five-mill operational levy; it levies another twelve mills to meet debt payments on outstanding bonds.

Although its tax base has grown, School District No. 1 derives a larger portion of its general fund operating revenues from state foundation funds (60 percent of its current budgeted total) than in previous years (54 percent). District property tax revenues have increased, but the portion of the county-wide twelve-mill school tax received by School District No. 1 has remained at about the same level. Overall, total general fund revenues have increased at an average annual rate of 12 percent over the three year period, while total expenditures have grown at an average rate of 22 percent annually. The greatest increase has been expenditures of instruction, which includes all teachers' salaries, in addition to supplies and materials. Expenditures per pupil have increased from \$3,204 in FY 1981 to \$4,600 budgeted for FY 1983.

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<sup>1</sup>Optimum capacity is 80 percent of maximum capacity.

TABLE 3.6.2.6-2

Size, Student Capacities, and Enrollment  
School District No. 2  
Sheridan County, Wyoming

School	Size (sq. ft.)	Maximum <sup>a</sup> Capacity	Enrollment May 1981	Enrollment 1982-83 <sup>b</sup>	Under/Over Capacity
Sheridan High	185,557				
Academic	85,146				
Gym	18,561				
Vocational Arts	16,044				
Vocational Agriculture	8,080				
New Unit	57,726	1,237	1,128	1,169	
Central Junior High	93,149	745	567	618	
Coffeen Elementary	35,904	398	417	NA	(83)
Highland Park Elementary	41,907	465	516	NA	(116)
Linden Elementary	36,667	325	164	NA	36
Meadowlark Elementary	50,904	565	449	NA	at capacity
John S. Taylor Elementary	30,231	335	227	NA	48
Woodland Park Elementary	30,512	339	277	NA	at capacity
Beckton Elementary	1,898	21	15	NA	at capacity
Story Elementary	7,678	85	44	NA	24

Source: Wyoming Department of Education, Administrative Services Division, A Facility Study for Sheridan County School District No. 2, Cheyenne, Wyoming, 1981:7,52.

<sup>a</sup>Optimum capacity represents 80 percent of maximum capacity.

<sup>b</sup>NA = not available by school. Total grade enrollments are shown in Table 3.6.2.6-3.

TABLE 3.6.2.6-3

Enrollment by Grade  
 School District No. 2  
 Sheridan County, Wyoming  
 1980 - 1983

Grade	1980-81	1981-82	1982-83
K	337	356	353
1	297	307	348
2	301	301	296
3	299	296	304
4	305	333	315
5	289	319	334
6	274	314	319
7	311	304	311
8	257	327	307
9	340	363	331
10	268	268	282
11	254	257	277
12	236	241	279
Total	3,768	3,986	4,056

Source: Sheridan County School District, Sheridan  
 County School District No. 2 Enrollments, 1982.

TABLE 3.6.2.6-4  
 Staff Personnel  
 School District No. 2  
 Sheridan County, Wyoming  
 1980-1983

School	1980-81	1981-82	1982-83
Sheridan High	86	97	98
Central Junior High	47	51	54
Coffeen Elementary	30	29	29
Highland Park Elementary	31	36	36
Linden Elementary	14	15	15
John S. Taylor Elementary	21	22	21
Woodland Park Elementary	21	21	21
Meadowlark Elementary	31	35	36
Beckton Elementary	3	4	3
Story Elementary	7	7	6
Total Teachers District-Wide	291	317	319
Support Personnel	172	167	167
Ratio of Teachers to Support Personnel	1.69	1.90	1.91

Source: Wyoming Department of Education, Administrative Services Division,  
 A Facility Study for Sheridan County School District No. 2, Cheyenne, Wyoming,  
 1981.

TABLE 3.6.2.6-5

Financial Profile  
Sheridan County School District No. 1, Wyoming  
FY 1981-1983

Item	1981 (Actual)	1982 (Actual)	1983 (Budgeted)
Data for School Year:			
District Enrollment	794	795	810
Classroom Units	NA	46.3	46.3
Assessed Valuation	\$11,963,169	\$13,792,283	\$16,351,265
A.V. per Pupil	\$15,067	\$17,349	\$20,187
Tax Levies			
General District	25 mills	25 mills	25 mills
Bond & Interest	9.33 mills	7.26 mills	12.36 mills
Percent of County Levy	21 percent	20 percent	21 percent
General Fund Revenues			
Beginning Balance	\$402,816	\$478,832	\$317,052
Local District			
Property Taxes	\$271,569	\$313,405	\$408,782
Other Local	\$154,734	\$173,256	\$197,885
County Sources			
Property Taxes	\$308,051	\$338,198	\$344,534
Other County	\$65,340	453,589	\$54,700
State Sources			
Foundation Funds	\$1,621,197	\$1,826,351	\$2,264,602
Other State	\$154,132	\$180,830	\$190,220
Federal Revenues	\$10,048	\$2,807	0
Total Revenues	\$2,987,887	\$3,367,268	\$3,777,775

TABLE 3.6.2.6-5 (cont.)

Financial Profile  
 Sheridan County School District No. 1, Wyoming  
 FY 1981-1983

Item	1981 (Actual)	1982 (Actual)	1983 (Budgeted)
General Fund Expenditures			
Instruction	\$1,408,260	\$1,804,171	\$2,194,313
Instructional Support	\$310,440	\$260,881	\$405,639
General Support	\$781,747	\$879,076	\$1,174,273
Other	\$38,880	\$129,864	0
Total Expenditures	\$2,539,327	\$3,073,991	\$3,774,775
Expenditures per Pupil (ADM)		\$3,867	\$4,660
Bonded Indebtedness			
Existing Debt (star of year)	NA	NA	\$1,068,160
Remaining Capacity			\$566,966
Annual Debt Payment	\$105,434	\$87,907	\$253,150
Capital Construction Funds			
State Entitlement	\$148,443	\$139,411	\$160,995
Other Grants & Loans	0	\$437,780	\$4,802,761
Other Revenues	\$74,922	\$529,592	\$286,000
Total Expenditures	\$209,709	\$688,965	\$5,986,907

Source: School District No. 1 Budget, 1982-82, Sheridan County, Wyoming.

Note: NA = not available.

At the start of the current fiscal year, School District No. 1 had about \$1 million in unpaid bonds, which represents about 65 percent of its debt capacity. This leaves it only about \$500,000 in unused bonding capacity. The district was able to acquire additional funds for capital construction through the Wyoming Farm Loan Board (about \$3.8 million) and advance capital construction entitlements from the state. Total capital construction expenditures of about \$6 million are planned this year for a new middle school and renovations to Big Horn Junior/Senior High School.

School District No. 1 has limited local resources to accommodate either operational cost increases or additional capital needs. It is receiving an increasing portion of state equalization support, as well as tapping outside sources of capital funding, since its bonding capacity is limited.

School District No. 2. School District No. 2 is the largest school district in Sheridan County, with an October 1982 estimated enrollment of 4,056 students for all grades. This is an increase of 176 students since the 1980-81 school year. Table 3.6.2.6-6 contains information pertaining to the financial status of the district, which is discussed in this section. The period of analysis covers FY 1981, 1982, and 1983.

The assessed valuation of School District No. 2 increased considerably from FY 1981 to 1982, then decreased by about \$10 million to its current level of about \$112 million. This is attributed to a lower valuation of public utilities. On a per student basis, there has been no net increase in assessed valuation. The district mill levy is at its nonvoted, maximum, twenty-five-mill levy, and the debt service levy has increased slightly to meet annual requirements.

As described previously, school district revenues are derived primarily from a combination of district, county, and state sources. Total general fund revenues, including starting balances, have increased at an average annual rate of about 11 percent since 1980, compared with about 8.5 percent for inflation.<sup>1</sup> District and county revenues have remained nearly constant, while the state foundation entitlement has increased considerably, from \$3.8 to \$6.7 million. This is because the educational cost per classroom unit (established annually by the legislature) has increased, while local resources have not, increasing District No. 2's eligibility for state equalization aid. Thus, the foundation entitlement has increased from one-third to one-half of total annual revenues. With the recent passage of the constitutional amendment shifting six mills from local to state control, a larger portion may be expected to come from this source (assuming no increase in assessed valuation).

General fund expenditures for instruction, instructional support, and general support have increased from \$9.7 to \$13.5 million, an average annual rate of 18.3 percent. On a per pupil basis, expenditures have increased from about \$2,500 in FY 1980 to a budgeted level of \$3,260 for FY 1983. This exceeds the average annual rate of inflation, reflecting the faster rise in educational costs.

School District No. 2 has an existing bonded debt balance of just under \$5 million, comprised of a 1976 refunding issue and 1978-79 general obligation bond issues. With a debt limit of 10 percent of district assessed valuation, there is currently a debt margin of about \$6.6 million that could be issued. Annual debt payments are about \$600,000, derived from a mill levy which is currently 5.2 mills.

The district is eligible for state capital construction funds, based on its relatively low assessed valuation. For 1982-83, the entitlement is estimated at \$414,117, which will be used for renovation and repairs. The district could apply to the state for advance entitlements if it were at 85 percent of bond-

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<sup>1</sup>According to American City and County Municipal Cost Index.

TABLE 3.6.2.6-6

Financial Profile  
Sheridan County School District No. 2  
FY 1981-1983

Item	1981 (Actual)	1982 (Actual)	1983 (Budgeted)
Data for School Year			
District Enrollment <sup>a</sup>	3,880	4,019	4,056
Classroom Units <sup>b</sup>	177.3	180.7	184.9
Assessed Valuation <sup>c</sup>	\$107,399,012	\$122,313,236	\$111,775,852
A.V. per Pupil	\$27,665	\$30,434	\$27,558
Tax Levies <sup>c</sup>			
General District	25.02 mills	25.00 mills	25.05 mills
Bond & Interest	4.82 mills	4.28 mills	5.21 mills
Percent of County Levy	87.5 percent	81.6 percent	82.9 percent
General Fund Revenues <sup>d</sup>			
Beginning Balance	\$1,685,378	\$1,328,330	\$1,125,271
Local District			
Property Taxes	\$2,958,838	\$3,374,654	\$3,131,396
Other Local	\$352,051	\$281,754	\$271,900
County Sources			
Property Taxes	\$1,310,227	\$1,396,618	\$1,344,600
Other County	\$67,171	\$72,888	\$68,500
State Sources			
Foundation Funds	\$3,839,042	\$4,794,436	\$6,668,000
Other State	\$742,668	\$882,585	\$900,650
Federal Revenues	\$38,269	\$20,315	\$20,000
Total Revenues	\$10,993,644	\$12,151,580	\$13,530,317
General Fund Expenditures <sup>d</sup>			
Instruction	\$5,948,876	\$7,013,102	\$8,233,692
Instructional Support	\$717,300	\$947,514	\$1,101,351
General Support	\$2,999,138	\$3,065,692	\$4,195,274



TABLE 3.6.2.6-6 (cont.)

Financial Profile  
Sheridan County School District No. 2  
FY 1980-81, 1982-83

Item	1980-81 (Actual)	1981-82 (Actual)	1982-83 (Budgeted)
General Fund Expenditures (cont.) <sup>d</sup>			
Total Expenditures	\$9,665,314	\$11,026,308	\$13,530,317
Expenditures per Pupil (ADM)	\$2,491	\$2,744	\$3,260
Bonded Indebtedness <sup>e</sup>			
Existing Debt (start of year)	\$5,375,000	\$5,090,000	\$4,785,000
Remaining Capacity	\$5,521,383	\$7,312,010	\$6,571,785
Annual Debt Payment	\$578,119	\$581,375	\$609,026
Capital Construction Funds <sup>f</sup>			
State Entitlement	\$255,120	\$220,075	\$414,117
Other Revenues	\$17,847	\$187,126	\$69,518
Total Expenditures	\$172,045	\$262,337	\$483,635

Source: School District No. 2 Budget, 1982-83, Sheridan County, Wyoming.

<sup>a</sup>Average Daily Membership (ADM), figures FY 1981 and FY 1982 given on p. 31 of School District 2 annual budgets for FY 1982 and FY 1983. Enrollment for FY 1983 is a school district count for October 1982.

<sup>b</sup>Classroom units are calculated by formula; figures given here are found on p. 31 of the annual budgets.

<sup>c</sup>Assessed valuation and tax levies from certified Sheridan County levy sheets, FY 1981-1983.

<sup>d</sup>General fund revenues and expenditures summarized on p. 31, annual budgets. Actual amounts for previous year are given in FY 1982 and FY 1983 budgets; FY 1983 is budgeted amount.

<sup>e</sup>From Statement of Borrowing Capacity, p. 26 of annual budgets for the years shown.

<sup>f</sup>From State Capitol Construction Entitlements, p. 14 of annual budgets.

ing capacity (it is currently at 45 percent). A proposed bond issue was defeated this year. Major building programs would have to be funded with bond issues, or grants if available.

Based on the past three years' data, Sheridan County School District No. 2 has not increased its local resources and depends increasingly on state equalization aid. Whether this trend continues would depend on the change in the district tax base. At this point, the school district is not extremely wealthy, but there is capacity to incur additional bonded debt if necessary.

### 3.6.3 Sheridan and Sheridan Area

#### 3.6.3.1 General Description

This section describes the existing environment in the city of Sheridan, which is defined by the city's municipal boundaries, and the greater Sheridan area, which has been defined to include the area west of Sheridan to the Big Horn Mountains and south of Sheridan to the community of Big Horn. Most of this area is considered semirural with scattered homesites and a few rural subdivisions. Most of the area's residents work in the city of Sheridan. The section is divided into five parts. Section 3.6.3.2 portrays the area's population and economy. Section 3.6.3.3 describes social life and cultural diversity in the area. The area's housing inventory is described in Section 3.6.3.4. Facilities/services and fiscal conditions are described in sections 3.6.3.5 and 3.6.3.6, respectively.

#### 3.6.3.2 Population and Economy

In 1980, Sheridan and the greater Sheridan area harbored nearly 81 percent of the total county population. The city's 1980 population was 15,146 people. The greater Sheridan area's population was 5,017 people.

Over the last decade, Sheridan has experienced considerable growth based on coal development in the Decker area of Montana, as well as in northeastern Wyoming. Located astride I-90, Sheridan is the major trade and service center within the study area, although many higher order goods and services are purchased in Billings, Montana.

Sheridan is a second-order trade center; its trade area encompasses the southern portion of Big Horn County, Montana, and Sheridan, Johnson, and (a portion of) Big Horn counties in Wyoming. Within this area, the mining and construction industries have spawned rapid growth. Oil and gas exploration and development have also contributed to growth.

The relative size of the wholesale/retail trade and service sectors, as compared to other sectors, illustrates Sheridan's position as a trade center (see tables 3.6.3.2-1 and 3.6.3.2-2). Mining, construction, and TCPU employment are also significant in Sheridan.

#### 3.6.3.3 Social Life and Cultural Diversity

##### Social history

The city of Sheridan and the surrounding urban area has long been the political, social, and economic center for Sheridan County and the surrounding areas of Wyoming and Montana. Its distance from other major centers (130 miles from Billings, 105 miles from Gillette, and 153 miles from Casper) and its location astride the region's major transportation routes (I-90 and the BNRR) and close to major coal reserves have led it to become increasingly dominant in terms of both population and economy.

TABLE 3.6.3.2-1  
Employment by Industry by Place of Residence  
Sheridan City  
1980

Industry	Sheridan City		Sheridan County		Percent of Sector
	Number	Percent	Number	Percent	
Ag, Forestry and Fisheries	84	1.2	668	6.0	12.6
Mining	798	11.6	1,410	12.6	56.6
Construction	708	10.3	1,287	11.5	55.0
Manufacturing	214	3.1	376	3.3	56.9
TCPU <sup>a</sup>	576	8.4	985	8.8	58.5
Wholesale & Retail Trade	1,571	22.9	2,309	20.6	68.0
FIRE <sup>a</sup>	325	4.7	469	4.2	69.3
Services	2,323	33.9	3,333	29.8	69.7
Government	259	3.8	361	3.2	71.7
TOTAL EMPLOYMENT	6,858	100.0	11,198	100.0	71.2

Source: U.S. Department of Commerce, Bureau of Census, 1980.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

TABLE 3.6.3.2-2

Employment by Industry by Place of Residence  
 Sheridan Area  
 1980

Industry	Sheridan Area		Sheridan County		Percent of Sector
	Number	Percent	Number	Percent	
Ag, Forestry and Fisheries	175	8.0	668	6.0	26.2
Mining	266	12.3	1,410	12.6	18.9
Construction	348	15.9	1,287	11.5	27.0
Manufacturing	83	3.8	376	3.3	22.1
TCPU <sup>a</sup>	169	7.7	985	8.8	17.2
Wholesale & Retail Trade	461	21.1	2,309	20.6	20.0
FIRE <sup>a</sup>	72	3.3	469	4.2	15.4
Services	585	26.8	3,333	29.8	17.6
Government	23	1.1	361	3.2	6.4
TOTAL EMPLOYMENT	2,182	100.0	11,198	100.0	19.5

Source: U.S. Department of Commerce, Bureau of Census, 1980.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

In addition to its strategic economic position in the region, Sheridan has had the additional advantage of a scenic setting (near the Bighorn Mountains) and an attractive history. Consequently, the greater Sheridan area has developed a reputation as one of the more desirable residential locations in the region. Its western ambience combined with its amenities have made it a location of choice for retirees, professionals, and, one must presume, miners.

Sheridan is the focal point of governmental activity in Sheridan County, housing both the city and county governments, and many of the local, state, (and private) service agencies.

As discussed in Section 3.6.2, the existing social environment of Sheridan County and Sheridan is best understood through an examination of the forces for change, and the community's response, during the 1970s. In addition, Sheridan, like many communities, continues to be influenced by its earlier history, particularly its origins and early growth. The accompanying reports by HRA (1983) and MWR-N (1983) provide a more complete discussion of the area's history and important socioeconomic trends that have influenced -- and will continue to influence -- the city.

Several aspects of Sheridan's history are particularly important:

- 1) The community was formed, and tempered in its early years by very rapid growth brought about by its establishment as a major rail head, serving the ranching and agricultural interests of the region.
- 2) Economic conditions during the community's formation encouraged the investment of Eastern and European interests and the establishment of huge ranches, many operated as investor corporations. Many of these large ranches were disbanded during the first half of the twentieth century, although several still exist, as cattle prices dropped and land was sold to smaller holders. Since this period, national trends toward land consolidation have reduced rural population while enhancing the aura of large landholders. Following World War II, a resurgence of interest by Eastern and European investors greatly increased the number and visibility of "gentleman" ranchers, dude ranches, and high quality, rustic recreational centers.
- 3) Since the 1910-1920 period when the political, social, and economic characteristics of the town underwent major diversification, the city has generally been trapped in a cycle of decline and an increasing dependence on agriculture. Particularly marked was the closure of the Holly Sugar beet factory, the brewery, the flour mill and the railroad tie yard during the 1950-1970 period.
- 4) Because of its desirable location and regional reputation, Sheridan had become an established retirement town by the 1950s. Its desirable location had also attracted a high concentration of professionals, who supported themselves by serving residents of south-central Montana, Buffalo, Sheridan, and other small Wyoming communities. As a result, the community had a high proportion of retirees and professionals, while the overall economy was largely stagnant.
- 5) Because little new, vital, and successful economic activity was initiated after 1920, the community elite became increasingly firmly focused on its pioneer families and on the families who had experienced early economic success. This tendency was enhanced by a tradition, unusual in western cities, for prominent citizens to establish philanthropic foundations.
- 6) As it became economic to develop the area's coal resources during the 1970s, Sheridan experienced an economic revival that revitalized the political and social processes of the community. The community had "active" issues to address, resulting in greater community debate, an increased emphasis on decisive leadership, and exposure to new economic, political, and social forces. As the community's population grew, and forecasts for additional growth became increasingly extravagant, facilities were strained and greater emphasis was placed on obtaining assistance from state and federal agencies. The magnitude of current and projected growth prompted concern over the preservation of the region's environment and life-styles. Despite the community's historic experience with miners, the influx of blue collar workers (as opposed to professionals or retirees) was viewed with some alarm, but community leaders made plans to expand facilities and services to accommodate continued growth.

- 7) The abrupt downturn in mining in the early 1980s and the evaporation of plans for power plants and synfuels development left community residents and leaders substantially more skeptical about growth forecasts and heightened their appreciation for the uncertainties associated with energy-resource growth.

Because the growth of the 1970s is particularly important to the description of the existing environment, some of its effects on the demographic characteristics of the community are summarized here.

Between 1970 and 1980, Sheridan's population increased from 10,856 to 15,146 (39.5 percent). This growth was due to in-migration, natural increase, and annexation by the city of previously unincorporated areas. For the city of Sheridan, this represented a substantial reversal of historic trends and resulted in the alteration of several demographic characteristics. In 1970, slightly over 18 percent of the population was 65 years old and over, a percentage which classified Sheridan as an unusually "old" population, even for a rural community. By 1980, the percentage of residents 65 years old and over had dropped to slightly more than 14 percent. This decline -- which was caused not by the cessation of retirement migration but by the more rapid influx of working-age adults -- had significant consequences for the social organization of the community, as discussed below.

Unlike previous development booms -- the earlier underground mining or sugar beet production, for example -- the growth of the 1970s did not have an appreciable effect on the community's racial or ethnic composition. By 1980, the city was 98 percent white, with the largest "nonwhite" components being American Indian (127 persons), blacks (22 persons), and undefined others (135 persons).

The best available data on well-being indicators have been presented in Section 3.2.3.<sup>1</sup>

Socially, Sheridan was already somewhat diverse by 1960. Its historical development had emerged a wide variety of groups and people (HRA 1983). However, the long period of economic decline between 1920 and 1970 had resulted in a gradual diminution of diversity/complexity as occupational opportunities contracted and ethnic groups were absorbed or moved away.

The coal mining of the 1970s brought the miners back to Sheridan, providing employment for many long-term miners from the area, and attracting newcomers to fill the mining and support positions that were rapidly expanding. Sheridan's attractive location and way of life had historically been a factor in luring new residents. Professionals -- doctors, dentists, and especially lawyers -- moved to Sheridan to set up practice. Apparently this migration was partly an anti-urbanism movement as many of the professionals particularly those who came from out of state left established practices elsewhere. A number of these newcomers were retiring residents who often brought a spouse and children, enhancing the diversity of personal backgrounds among community residents. The community also attracted retiring residents from throughout the region.

### Social organization

The growth that occurred during the 1970s brought with it changes in the community's diversity/complexity. Some of the changes were the reestablishment of previous characteristics, others were new.

During the growth period, many new businesses opened in Sheridan, bringing in owners, managers, or staff personnel from outside the area and often outside the region.

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<sup>1</sup>Results of the area resident survey will be incorporated here.

Another source of increased diversity/complexity during the 1970s was the emergence of special interest groups and the establishment of specially targeted social programs. This phenomenon had been present on the national scene for at least a decade prior to its appearance in Sheridan, and so, in some sense, indicates an intrusion of the larger society into the Sheridan society. Special interest groups, or other specially identified social groupings, automatically divides the community into those who are included in the group and those who are not. Explicit identification of social groupings encourages people to be conscious not only of their own group membership but also that of others. This, in turn, has ramifications for personal and community interaction.

Two of the most notable special interest groups in Sheridan were the senior citizens and the Powder River Basin Resource Council (PRBRC). The senior citizens group reflects the influence exercised by retirees and other elderly residents of Sheridan. By the late 1970s, the senior citizens group had gained a stronger, more formal, and more explicit voice in city and county affairs than before and had obtained financial support from local, state, and federal agencies. The PRBRC was established to fight mineral development in the area. Although primarily concerned with effects of development on the physical environment, the organization was also concerned with the effects of industrial growth, especially mining, on the social environment of the community and on residents' quality of life.

Although more indirect, the establishment of specially targeted social programs has many of the same consequences as the emergence of special interest groups; it identifies and establishes criteria for grouping people. The new social programs that were established in Sheridan during the study period, like those at the national level, were designed to serve a diverse population as well as to address diverse problems. Examples of the programs of this nature that were established in Sheridan during the 1970s include a halfway house for substance abuse, (which received community support), youth programs (which included those to assist teens find jobs and to assist runaways), and recently, a women's center (which provides counseling as well as help in spouse and family abuse cases). The women's center initially faced some opposition from the community but has gained a degree of community support.

In sum, during the 1970s, Sheridan became more socially diverse/complex through two processes: (1) new people moved into the community bringing with them more diverse characteristics and backgrounds, and (2) special groups were more explicitly identified as either target population or stakeholder groups.

During the 1970s, Sheridan's economy matured (see sections 3.6.2.1 and 3.6.3.2). The commercial and service sectors in particular diversified and expanded. Large-scale coal mining (and its accompanying support industries) expanded the basic sector of the economy, though becoming sufficiently dominant that it may well have reduced the diversification of the area's economy.

The revival of coal mining and other energy-related activities, although located largely in Montana, brought renewed economic life to Sheridan as new demands for goods and services were created. A high percentage of those employed at the new mines or in mining support industries lived in Sheridan. Many were already residents of the community before the mines opened. In 1976, for example, 260 employees of the Decker Coal Company lived in Sheridan County. At that time, Decker had a weekly payroll of \$90,000 (Sheridan Press 1976), much of which was spent in Sheridan. In 1977, energy-related companies spent \$5,000,000 in Sheridan County on nonpayroll expenses. Total payroll of these companies (which includes Snell Oil, Trans Ocean Oil, Big Horn Coal, Decker Coal, NERCO, Peabody Coal, DYCO, and Prill Manufacturing Company) was \$15,786,000. It was also estimated that 575 coal mine employees, with an average income of \$30,000 lived in the Sheridan area (Sheridan Press 1978).

The availability of this magnitude of new income supported a much larger and more diversified economy. As described in the previous section, Sheridan's role as the regional trade center as well as a tourist center resulted in the accumulation in Sheridan of demand for goods and services from an area extending to the Crow Reservation in the north, Gillette in the west, and Buffalo in the south. As a result of increased energy-related employment and income throughout this area during the 1970s, Sheridan's economy

grew very rapidly, in a rush of expansion. In 1977 alone, forty-two new businesses were established in Sheridan County, most of which were located in Sheridan city. Many of these were locally owned specialty shops, but the new businesses also included a number of national chain stores. Over the decade of the 1970s, and into the 1980s, many nationally known fast-food chains opened in Sheridan,<sup>1</sup> providing further variety to the local economy, and increasing the area's links to the outside.

The downturn in mining during the early 1980s had a widespread effect on Sheridan. As one respondent put it, the downturn showed Sheridan how economically addicted it had become to energy development. So far, the downturn has not substantially affected the economic diversity that already occurred, but it did stall much of the additional expansion that had been planned (and forecast).

Sheridan entered the 1970s as a politically stable community; its political positions were held by a small group of elites; the handling of city business was considered a fairly routine matter. This all changed during the 1970s as community leaders faced a myriad of decisions concerning the daily operation of the city as well as its future conditions. The most important changes occurred between 1974 and 1981. By 1974, the city leaders had begun to react to the growth that was occurring. Throughout the growth period (and through the decline as well), the city government generally acted in accordance with the philosophy that the most effective response was to plan for and take care of problems as they occurred, rather than to act precipitously by trying to anticipate them. To some extent, this was a self-defense mechanism developed to cope with the highly uncertain and risky planning environment created by the ever-changing array of proposed developments, population projections, and service demand estimates with which they were faced. To some extent, however, it was also a reflection of the conservative philosophy held by community leaders and residents alike.

As has been found typical of many impacted communities in the intermountain West, one of the first major political changes communities make in response to the rapid growth is to establish planning procedures. In 1974-1975, a county planning office (Sheridan Area Planning Agency SAPA) was approved and established. Its establishment introduced a new layer of bureaucracy in local county government and formalized a decision-making process that had previously been largely informal. Not surprisingly, since the city had a long-established planning commission (1952) the SAPA was the focus of considerable political debate, as decision-makers maneuvered to maintain their autonomy and authority. Efforts to move toward explicit cooperation between the city and the county also created unease -- as did the mere concept of governmental planning and "control."

As a result of decisions similar to those described above, community decision-making became more complex during the 1970s. Not only did new people, organizations, and groups have to be taken into account, but the decisions had to be more legalistic and technical, with fewer "loose ends" than before. Those making decisions about rezoning, mobile home subdivisions, and participation in social programs had to be concerned about the opinions and response of an increasingly diverse, educated, and unfamiliar polity. Local government became more clearly political as more decisions became subject to explicit bargaining and negotiation. Professional administrators and service providers came to hold positions critical to the functioning of local and state governmental programs. A comment by one of the county commissioners that meeting agendas were getting larger and more complicated and that more time and attention were needed to conduct governmental business applies to city government as well.

Underlying all of this was an air of uncertainty and tension that had not been present for many years. Sheridan's decision to deal with this uncertainty conservatively, by formulating an approach that

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<sup>1</sup>A K-Mart store opened in 1977, and a large Holiday Inn Hotel and Convention Center opened in late 1981.



dealt only with those impacts that were occurring or had occurred, rather than by attempting to plan ahead and anticipate impact, was generally successful. In part, this was because Sheridan was already a relatively sophisticated community, and in part it was because the magnitude and duration of growth were not extreme. It must be pointed out that Sheridan was never a boomtown, actually or in the perception of the residents. The population growth that occurred was spread out over a period of five to six years and was large, but not overwhelming. Despite all the changes, the residents of Sheridan are still generally able to think of the town as Sheridan -- a nice, homogeneous community -- a characterization many of them clearly prefer.

#### Stratification (distribution of resources and status)

As has frequently occurred in western towns with strong ties to ranching, access to resources has become more open with the advent of energy development, but access to social esteem and status has remained relatively closed. Sheridan provides numerous examples of individuals who have been able to acquire economic or political positions of considerable importance without having, or acquiring, concomitant social status or personal (as opposed to positional) influence. A key factor in access to status, personal influence, and esteem remains membership in or kinship ties to one of the town's historically prestigious families. Given the community's size and diversity, the strength of this characteristic is surprising.

Many who achieve political position or other job opportunities through their own expertise have access to power, but these people do not yet enjoy a similar access to social status. In Sheridan, a great deal of emphasis is placed on one's genealogy. People in the community are not seen purely as individuals but as part of family networks. Social status comes from being linked with old families, especially those with ranching interests. Indeed, this is such a pervasive part of the community that even newcomers from outside the region quickly learn to identify individuals in terms of their family linkages.

#### Outside linkages

Sheridan is well linked with the larger society socially, economically, and politically -- characteristics that were enhanced during the growth period of the 1970s.

In terms of outside social linkages, Sheridan has the usual split between the linkages of the old-timers and newcomers. The social linkages of longtime residents tend to emphasize relatives (either intragenerational linkages, such as siblings and cousins, or intergenerational, such as children, aunts, and uncles), although many have friendship, professional, political, and economic ties outside the community as well. Newcomers, by virtue of their recent experience outside the community, are likely to have diverse and more immediate ties to persons and organizations outside the community.

Because of Sheridan's strong emphasis on family ties, on length of residence (or of land ownership) in the community, and on the "western" lifestyle, miners were not particularly welcomed. Nor were others, such as professional service providers/administrators from the "east." As a result, some newcomers found it difficult to become accepted into the community and were inclined to maintain stronger outside ties than those who fit more easily into the social networks of the community. The presence of such linkages has both advantages and disadvantages for the community. They provide a mechanism for new ideas, resources, and skills to flow into the community, yet, they tend to decrease community integration.

The decline in ties of personal familiarity among residents of the area was partially counteracted by the new special interest groups and organizations that were formed during this period. The PRBRC, for example, had members from other communities and rural areas. The organization was instrumental in prov-

ing linkages with other environmental organizations. The new social programs also increased outside ties. Although locally administrated and staffed, they still received policy and administrative directives, as well as funds, from outside the community.

Economically, Sheridan has been and continues to be largely dependent upon outside forces. Agriculture and tourism, long mainstays of the economy, are very heavily dependent upon outside market conditions for their prosperity. With the revival of energy development, a new and substantial portion of the population became explicitly dependent on outside factors, as evidenced by the downturn in 1980. Energy companies set up offices in Sheridan, transferred staff among local offices, and directed policies for local operations. This paradox -- the need for outside markets and a dependence on forces outside the community to provide the impetus for local growth and decision-making -- created both an increased awareness and interest in regional and national affairs and an increased awareness and interest in maintaining a local identity and autonomy.<sup>1</sup>

Throughout the 1970s, therefore, the residents and economy of Sheridan became increasingly -- and more actively -- enmeshed in national trends and issues. Many of the new businesses that came into Sheridan during the study period were local operations of much larger enterprises. These businesses provided capital, local employment, and management skills, but they also removed money from the area in the form of corporate profits.

By the 1980s, therefore, as a result of these changes, Sheridan had become closely and actively tied to the national economy -- and subject to its fluctuations and forces. According to one respondent, Sheridan had become significantly more of an urban economy.

In most rapid-growth communities, the likelihood of successful response is greatly enhanced if the community has effective political ties to state and federal decision-makers and revenue sources. Sheridan is no exception; indeed, because of the location of the mining activities (in Montana), the ability to obtain financial assistance from outside the local area was more important in Sheridan than in communities whose local tax base received the full benefits of development. Fortunately for Sheridan, these linkages were well established by the beginning of the growth period and were effectively utilized. These outside contacts freed the city of dependence on the county for monies, gave the city some degree of influence, promoted further planning, and permitted the city to respond to the needs generated by growth. Without the ties, and the associated money, Sheridan could not have handled the growth as well as it did. By the 1980s, the mechanisms and skills for utilizing political avenues were well-developed, reducing the isolation of community leaders in devising resources for response.

#### Integration (coordination and cooperation)

Because of its size, Sheridan does not maintain close personal relationships among all members -- nor has it for many years. Nevertheless, most residents in a community such as Sheridan seek inclusion, a sense of community, and demonstration that the various elements of the community are acting with a degree of communication, coordination, and cooperation. As the community has become more diverse, and as interest groups have become more outspoken, the need for formal mechanisms that facilitate coordination, cooperation, and negotiation has increased.

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<sup>1</sup>NERCO's establishment of a regional headquarters in Sheridan reflects the importance given to balancing these tensions, of indicating to the local community that corporate decision-makers know and care about local conditions and issues.

Newcomers in the early growth period report that their reception was not enthusiastic. In fact, many felt they were resented and generally distrusted. During the growth period, newcomers ignorant of or in disagreement with the established norms were frequently subjected to disapproval or social sanction. This was generally attributed to the community's strong conservatism and to its long period of stable or declining population, which had reduced residents' exposure to change. By the 1980s, most of those interviewed felt that the community had become more inured to and more tolerant of newcomers and different lifestyles. In this, Sheridan was joining communities throughout the nation. In addition, as a result of the diversification of the community during the 1970s, by the 1980s, newcomers were more likely to find residents with similar interests and perspectives and had less need to either conform or to aggressively insist on their lifestyle characteristics.

One mechanism for incorporating newcomers into the community, for providing social support, and for enhancing coordination is voluntary organizations. Membership in such organizations (religious, professional and community service, fraternal and social, cultural and arts, and specific interest organizations) opens avenues for friendship and for community action. It also provides mechanisms for neutering and focusing conflict. Nevertheless, in larger communities, these types of voluntary organizations play an important role in enhancing residents' sense of efficacy, and, indeed, for controlling and coordinating the presentation of diverse views. By the 1980s, a wide array of voluntary organizations was present in Sheridan.

#### Economic integration

The community growth experienced during the 1970s required more cooperation and coordination among political entities than usual. In many towns, long-standing conflict between the city and county government has precluded any effective action. However, in Sheridan, leaders appear to have been able to establish some meaningful cooperation between the two governmental agencies. Examples include joint ventures in obtaining and using grant money and revenues from the optional one-percent sales tax.

The community has also developed experience with cooperation between government and industry. In 1976, when the planning office was having trouble obtaining sufficient funding, Shell Oil Company contributed \$15,000. In 1975, they had contributed \$13,000 (Sheridan Press 1976). The Wyo-Mont Industrial Association has been established to promote communication and cooperation between the major industrial interest and the community.

In summary, it can be said that despite the trends for greater diversity and complexity in the community, Sheridan has maintained a great deal of integration and has established new integrative mechanisms.

#### Perceptions of the community

Residents' and the community's response to future energy development will be influenced by their perceptions of the effects of the earlier coal development activities, by their perception of the community, and by their attachment and commitment to it.

Most residents express the opinion that Sheridan and the surrounding area is about the best place in the world. The size of the community, the friendly people, the climate, and the proximity of the Big Horn Mountains all make Sheridan an ideal place in which to live. Residents refer to these characteristics when they talk about their quality of life and lifestyle. This positive view is similar to that held before the 1970 growth period and is generally shared by newcomers. Many of the newcomers reported wanting especially to come to Sheridan because of its quality of life.

The indications are that most community residents feel that on the whole, growth was good for Sheridan -- it brought in new people, but more importantly, it brought new business and vitality to the community. It appears that most residents are willing to trade the problems of growth for its benefits. An additional reason that residents favor growth and generally do not feel that it is inordinately detrimental is that most think the city and county governments have handled and are capable of handling growth fairly well. Indeed, most residents express the desire to see some additional growth, especially after the downturn in coal production during the early 1980s. Opposition to growth, both in the 1970s and at the time of this study comes mainly from the ranchers and the older segments of the population who have been adversely affected by the escalation in housing costs and traffic and inconvenienced by the geographic sprawl of development.

The downturn in coal and the layoffs at the mines (especially the size of the layoff at Spring Creek) surprised most people. In the mid- and late 1970s, there was the feeling that coal development would continue and expand for a long time. Several articles in the Sheridan Press during this time promised such a future. The promise of unending coal and energy development, followed quickly by their drastic reduction, has made many suspicious of the possibility and probability of new coal and related development.

Two notable changes in perceptions of the community occurred during the 1970-1982 period; both revolved around how residents related to the community. In the 1970s, Sheridan was seen as an ultraconservative community. There were incidents and evidence of racial prejudice, women had very stereotyped roles, and political philosophy was based on individualism and self-reliance. Gradually, however, as new influences and people have moved in and Sheridan has become more urban and diverse, this has changed. Sheridan is still a conservative community, but not to the extent that it was previously. It is reported that most people in the community enjoy the change.

The second change in perception most people have not enjoyed: a decreased sense of trust and personal safety. Residents reported a significant increase in their apprehension of becoming a victim of crime. Although this issue may have been exaggerated at the time of the field study by two recent rape-murders of older women (murder is rare in Sheridan), newspaper articles in the mid- and late 1970s indicate that the issue has been important for several years (as it has been throughout the country). The perception of increased risk is generally focused on vandalism and burglary. Although it is prevalent throughout the community, it is especially concentrated among the elderly.

Another persistent issue in the community throughout the 1970s has been the tax situation. Most people interviewed noted the unfairness of the accrual of severance, property, and, especially, income taxes from coal mining to Montana when the county and community of Sheridan were providing services to the great majority of the mine employees. Although recognizing the receipt of sales taxes on expenditures made by the companies and their workers and the benefit of additional commercial activity for Sheridan merchants, the inequity was uniformly (if resignedly) commented upon. Community residents appreciate their dependence upon state impact assistance funds and generally feel that the community has not fared badly, but are nonetheless sensitive about the issue.

Indicators of community well-being are discussed in Section 3.2.3. No particular problem areas not already discussed were evident in Sheridan.

#### 3.6.3.4 Housing

Tables 3.6.3.4-1 and 3.6.3.4-2 present U.S. Census data on the Sheridan and greater Sheridan area housing stock by type of unit. As shown in Table 3.6.3.4-1, Sheridan's housing stock grew from 4,438 to 6,604 units between 1970 and 1980, an increase of 48.8 percent. Single-family detached units composed 40 percent of the 2,166 unit increase over the period. Multifamily units made up 38 percent of the increase, and mobile homes made up the remaining 22 percent.

TABLE 3.6.3.4-1

City of Sheridan  
Housing Units by Type

Type of Unit	1970	1980	Number of Units	Change 1970 to 1980	
				Percent of Change (year-round)	Percent 1970-1980 Growth
Total housing units	4,438	6,604	2,166		48.8
Year-round units	4,434	6,577	2,143	100.0	48.3
Single-family detached	3,454	4,318	864	40.3	25.0
Multifamily	924	1,733	809	37.8	87.6
Mobile homes	56	526	470	21.9	839.3

Source: U.S. Department of Commerce, Bureau of the Census, Detailed Housing Characteristics for Wyoming, 1970, 1980.

TABLE 3.6.3.4-2  
Greater Sheridan Area  
Housing Units by Type  
1980

Type of Unit	Number of Units	Percent of Year-round Units
Total Housing Units	1,596	
Year-round Units	1,552	100.0
Single-family Detached	1,136	73.2
Multifamily	91	5.9
Mobile Homes	325	20.9

Source: U.S. Department of Commerce, Bureau of the Census, Detailed Housing Characteristics for Wyoming, 1980.

Although 1970 census data do not conform to the greater Sheridan allocation area, 1980 data indicate that the 1,552 year round units were composed of 73 percent single-family detached units, 6 percent multi-family units, and 21 percent mobile homes.

### 3.6.3.5 Facilities and Services

#### City of Sheridan

The public facilities and services operated by Sheridan include the following:

- 1) General government
- 2) Engineering, public works, sanitation, and cemetery
- 3) Police
- 4) Fire
- 5) Parks and recreation

#### General government

The functions of general government in Sheridan include administrative and executive services, legal services, operation of the city hall, and collection of fines and fees. The existing city hall was constructed in 1910 and contains 14,775 sq. ft. (plus an additional 4,925 sq. ft. in the basement). Attached to the city hall, the fire department has 4,284 sq. ft. for housing equipment. There is no capacity for further expansion at the present site. Annual maintenance costs for the city hall are projected at \$37,600 for FY 1983. Recent building improvements have included the addition of a fire escape, costing \$52,400, and some maintenance/repair to restrooms and conference rooms, costing \$15,000. Personnel for general government functions has remained constant at twelve employees over the last three years.

#### Engineering, public works, sanitation, and cemetery

The City Engineering Department oversees the engineering and planning, utilities, sanitation, and street planning. Street maintenance and operation functions are the responsibility of the Public Works Department. (Sanders, personal communication, November 1982.)

Water. The city's water system was developed in about 1965. It consists of rapid sand filters, chlorination, and settling basins. The gravity flow system requires no pumps. Sheridan has direct flow water rights on Goose Creek, the source of their water supply. The water storage system, which consists of two mountain reservoirs and storage tanks in the city, has a capacity of 10 million gallons. Since peak usage in the summer months reaches between nine to ten million gallons, the system is now at capacity. The local planning standard is 200 gallons per capita per day. The city's water system is on meters. The current tap fee is \$134 and the plant investment fee (PIF) is \$600. Water service rates vary with the water utilization rate and meter size. There are five employees assigned to the water plant; this staffing level has been constant for seven years. (Sanders, personal communication, November 1982.)

The planning service area for both water and sewer includes the area within a mile and a half radius around Sheridan. Water trunk lines have already been extended. If growth were to occur, pump stations would have to be added for water distribution, the filters and flotation devices would need expanding, and transmission lines or holding reservoir capacity would need to be increased. An additional source of water would also have to be identified. (Sanders, personal communication, November 1982.)

Sewer. The Sheridan wastewater system is an oxidation ditch, trickle/filter system with a capacity of 2.1 million gallons per day (mgpd) that was originally developed in the 1930s and was expanded in the 1960s. An expanded capacity of 4.4 mgpd is planned for 1983. The expanded plant could serve a population of up to 29,000. The local planning standard is about 100 gallons per capita per day. The estimated cost of remodeling and expanding the old system is \$10.4 million. The sewer system is operated and maintained by four city employees; staff size will increase to seven in 1983 in anticipation of the expanded system. (Sanders, personal communication, November 1982.)

A study is being conducted to establish tap and service fees for the expanded system. The adjusted rates will include operation, maintenance, and depreciation expenses. The existing tap fee is \$50 and the plant investment fee (PIF) is \$600. Monthly service rates vary with water consumption and the size of the installed water meter. (Sanders, personal communication, November 1982.)

Building permits and utilities. The engineer's office is responsible for building permits. The office currently has three inspectors, two draftsmen who spend 50 percent of their time on utilities, two engineers who spend sixty percent of their time on engineering and forty percent on utilities, and one additional engineer (added in 1982) to do planning. (Sanders, personal communication, November 1982.)

The City Utility Department has one truck (1957), one smaller backhoe (1977, cost \$40,700), and one dumptruck (old, needs replacing). Should growth occur, additional equipment would be needed, specifically a service truck, backhoe, and another dumptruck. Utility personnel include five men who maintain the water transmission lines, sewer interceptor lines, and sewer collection system. Should significant growth occur, an additional maintenance crew for utilities would be necessary. Office space is adequate to handle additional personnel. (Sanders, personal communication, November 1982.)

Public works. The Public Works Department is responsible for streets, sanitation, parks, cemetery, and the city's service center. The streets of Sheridan are generally in good condition. There are 78.7 miles of city streets; 64.7 miles are paved. The department has an ongoing renovation program that will be expanded using severance tax receipts. (Pelesky, personal communication, November 1982.)

Forty-two people are employed full time in the Public Works Department; however, staff levels probably average forty-five to forty-seven over the year since part-time help is hired in the summer. This staffing level has increased by about one person each year for the last three years. (Pelesky, personal communication, November 1982.)

The city's service center (shop) is located on thirteen acres and currently has a shop space of 9,600 sq. ft., with four work bays, a grease rack, and space for housing equipment. The city is seeking bids now for a 3,600 sq. ft. expansion to the shop. The addition will be used mainly to house equipment. The existing shop and grounds were purchased three years ago for \$175,000. (Pelesky, personal communication, November 1982.)

The city public works department has the following equipment:

- 1) 2 loaders (1975 and 1982 -- cost \$60,000)
- 2) 3 motorgraders (1963 (small), 1975, 1980)
- 3) 8 dumptrucks
- 4) 2 streetsweepers (old and 1982 -- cost \$77,000)
- 5) 2 streetflushers (old and 1980 -- cost \$30,000)
- 6) 1 hot mix plant
- 7) 1 rock crusher
- 8) 1 distribution truck and tank



- 9) 1 chip spreader
- 10) Miscellaneous small equipment

Equipment is replaced as often as possible and as needed. The equipment replacement capacity is somewhat dependent upon the costs for snow removal -- if snow removal costs are high, no funds are left for equipment replacement. (Pelesky, personal communication, November 1982.)

Drainage is a problem in Sheridan. There is currently no drainage system plan; because of this, new developments are not required to include drainage provisions. There are storm sewers in some old parts of town, but most of them need renovation. Solution of this problem is likely to require coordinated action by both the city and the county. (Saunders, personal communication, November 1982.)

Sanitation. The city has recently purchased 125 acres to add to its current 35-acre landfill located east of Sheridan. The additional acreage cost \$375,000 and was jointly purchased by Sheridan, the EPA, and the Farm Loan Board. (Pelesky, personal communication, November 1982.)

The landfill currently has adequate equipment, including the following:

- 1) 1 crawler tractor (1981, cost \$175,000, minimum ten-year life)
- 2) 4 rear-loader trucks (being phased out)
- 3) 1 automated truck (1982, cost \$68,000)
- 4) 1 back-up automated truck (used)

A bid has been made for a D-6 caterpillar. Automation of the collection system will be 65 to 75 percent complete in 1983. The city will continue to run two rear-loaders, keep one for back-up, and will sell or trade the remaining rear-loader truck. There is no established program for capital replacement although an attempt is made to buy new equipment every five years. Revenue sharing funds have been used for some equipment purchases. (Pelesky, personal communication, November 1982.)

In FY 1983, 1,250 new 90-gallon roll-out containers and 850 new 300-gallon containers will be purchased for a cost of \$190,000 to complement transition to the automated system. (Pelesky, personal communication, November 1982.)

In 1982 there were 5,100 garbage collection accounts; 550 commercial and 4,550 residential. The fee for residential accounts is \$3 per month for once-a-week pick-up. The commercial fee is \$12 per month for once-a-week pick-up and \$12 a month for each day of additional pickup. (Pelesky, personal communication, November 1982.)

Cemetery. The city's existing forty-acre cemetery was established prior to the turn of the century and is now at capacity. In FY 1982, the city purchased thirty-five additional acres of land adjacent to the existing site for \$135,000. The city owns sixteen lots across the street from the existing cemetery which also have been designated for this purpose. The expanded capacity will be adequate for many years. (Pelesky, personal communication, November 1982.)

The city unofficially serves the entire county for cemetery services. Fees were recently raised to cover costs. New fees are \$200 for a space (\$300 for non-residents) and \$150 for opening and closing. The new fees should make the cemetery services self-sufficient. (Pelesky, personal communication, November 1982.)

## Police

The Sheridan Police Department serves the incorporated area of Sheridan. The police moved into a new 20,000 sq. ft. facility in 1982 that it shares with the Sheridan County Sheriff's Department (see Section 3.6.2.4 for description of the facility). The police and sheriff will maintain separate operations but will share/exchange dispatch and jailer functions. (Krout, personal communication, November 1982.)

The city has authorized a police staff of twenty-nine; twenty-six positions are filled. The number of personnel has been steady for the last three years. The FBI recommended standard is 1.2 police per 1,000 population. Although Sheridan does not have a planning standard, their current police to population ratio is 2/1,000. (Krout, personal communication, November 1982.)

The number of police calls more than doubled in the 1970s but has remained constant at about 10,000 to 11,000 calls per year for the last three years (Krout, personal communication, November 1982).

## Fire

Sheridan is constructing a new, 10,000 sq. ft. fire station at a cost of \$764,000. The new station will have four bays (60 ft. in depth so that each can house two vehicles) and living quarters for eight people. Including furnishings and communications equipment, the total cost of the new facility is \$938,000. (Holst, personal communication, November 1982.)

The Sheridan Fire Department has eighteen full time personnel. There is also provision for fifteen part-time personnel to help during emergencies; however, 90 percent of all calls are handled by the full-time staff. The number of firemen has actually decreased from twenty-two since 1979, mainly due to discontinuation of a joint operation with the county at the airport fire station. Dispatching is handled by the police department. (Holst, personal communication, November 1982.)

The city fire department responds to calls up to five miles outside the city limits. It responds to about 270 calls per year, for structural fires, medical calls, smoke scares, vehicle and grass fires, and false alarms. The department has no mutual aid agreements with other county fire districts. The longest response time, approximately ten minutes, is to the northwest section of Sheridan. Although the city owns a site for a fire station in this section, there are no plans for immediate expansion. The fire chief indicated a need for a training facility whose estimated cost is \$710,000. (Holst, personal communication, November 1982.)

The city's fire fighting equipment includes:

- 1) 1952 pumper (750 gpm pump)
- 2) 1969 pumper (1,000 gpm pump)
- 3) 1977 aerial ladder with 1,250 gpm pump
- 4) 1980 quick response, 1,100 gpm pumper (cost \$72,400)

## Parks and recreation

The park and recreation function is a hybrid. District boundaries coincide with those of School District No. 2 and funding support comes from both the district's one-mill levy and the city's general fund. Services are concentrated in Sheridan. Department personnel have remained stable for the last three years with three professionals and one secretary (although during FY 1982 there were four professionals). (Swingle, personal communication, October 1982.)

An inventory of existing parks and facilities is shown in Table 3.6.3.5-1. The recreation district has no indoor recreation facilities, and there are no provisions for mandatory dedication of park lands through the subdivision process. School gymnasiums, churches, and the Elks Club are used by the district for indoor recreation, an arrangement that is unsatisfactory because of scheduling conflicts. The district does have a formalized agreement with the schools to use several gymnasiums from six to nine p.m. week nights. Only one gym is available on Saturdays. Weekend use of school gyms has been discouraged by the schools because no custodians are on duty. (Swingle, personal communication, October 1982.)

Other recreation facilities in Sheridan include (1) the YMCA, which has two gyms, a swimming pool, racquetball courts, and fitness facilities, (2) a fitness club with nautilus equipment and racquetball, (3) two indoor and one outdoor movie theatres, (4) a twenty-lane bowling alley, and (5) two roller skating arenas. According to the district's director, the most popular activities are softball, volleyball, wrestling, and fitness. (Swingle, personal communication, October 1982.)

### 3.6.3.6 Fiscal

#### Financial profile -- City of Sheridan

This section describes the trends and makes observations regarding Sheridan's current and future financial condition, based on the indicators shown. Table 3.6.3.6-1 provides a summary of the financial data for Sheridan for FY 1981-83.

#### General fund

The city's assessed valuation has increased at a slower rate than inflation (5.15 percent versus 17.5 percent) between FY 1981 and 1983. The mill levy has remained stable at about ten mills over the same period. While the proportion of revenues derived from the property tax has remained nearly constant, the ratio of property tax to expenditures has decreased from 4.8 percent to 4.2 percent.

The sales tax, made up of a 3 percent state tax, a 1 percent local option tax, and a 5 percent use tax, provides the single largest revenue source, about one-third of the total. One-half of the sales tax revenues received is derived from the one-percent local option tax which must be approved by voters every two years. Disapproval of the option tax would reduce available revenues by about 15 percent.

Since FY 1982, the severance tax has provided approximately 20 percent of all revenues. This tax is distributed by the state and is therefore not directly tied to local growth. Similarly, state and federal grants currently comprise over 13 percent of total revenues. Like the severance tax, growth in community population is not necessarily accompanied by an equivalent growth in grants.

The proportion of total expenditures for capital projects is quite high, averaging about 43 percent each year. Major projects currently underway include the law enforcement facility, street projects, and the downtown fire station. The combination of sales tax receipts and other locally generated revenues is sufficient to cover current operating and maintenance expenditures. Grant money is being used to fund a portion of the capital projects.

#### Utility fund

The utility fund, consisting of the water and sewer departments, shows similar trends. Capital expenditures have increased greatly since FY 1982 and account for 60 percent of the utility budget in FY 1983. Charges for service, tap fees, and miscellaneous revenues exceeded operating and maintenance expenditures

TABLE 3.6.3.5-1  
Parks and Facilities  
Sheridan County, Wyoming

Park	Acres	Facilities
Thorne-Rider	45	<p>2 baseball/soccer fields with lights  4 tennis courts  2 playgrounds  2 volleyball courts  430 parking spaces</p> <p>Half of Thorne-Rider park is developed, the other half will be developed in phases. Development has been paid for by the Athletic Association Foundation (AAF): the park is owned by the city but leased to the AAF.</p>
Kendrick	50	<p>1 swimming pool (rebuilt in 1982, \$120,000)  1 band shell  picnic units  1 playground  horseshoe courts  1 ice cream concession stand</p> <p>Kendrick is fully developed; it is an older park in the downtown area.</p>
Softball Complex	+ 8	<p>3 softball fields with lights, bleachers, and concession stand  1 large playground  2 tennis courts</p> <p>This park is owned by the college but maintained by the park and recreation district. Development has taken place over the last three years and cost approximately \$0.5 million.</p>
Lions Club	+ 3.5	<p>1 practice baseball field  1 basketball court  1 playground  picnic units</p> <p>This park is about ten years old.</p>

TABLE 3.6.3.5-1 (cont.)

Parks and Facilities  
Sheridan County, Wyoming

Park	Acres	Facilities
Sheltered Acres	+ 4	1 playground 1 tennis court picnic units  This park is about ten years old.
John Oatts Field	+ 4	3 Little League baseball fields 1 small playground  This park was developed more than ten years ago.
Washington	+ 3	1 practice baseball field 1 playground 35 overnight camping spaces  This park was developed in 1981 for a cost of \$73,000. The camping area is being redeveloped.
Big Horn Avenue	+ 5	This park has been recently acquired by the city for \$110,000. It will be developed in phases; the master plan is complete and provides for soccer fields, a picnic shelter and units, and a playground. First phase development is scheduled for 1982 for \$50,000; a \$30,000 matching grant has been obtained.
Old Mill	1	This park is in mid-town Sheridan. It was developed in 1981. Labor was accomplished by the city staff; materials cost about \$10,000.
Golf Course	+ 100	The course has eighteen holes, club house and pro shop operated through a concession, and a driving range.

Source: Swingle, personal communication, October 1982.

TABLE 3.6.3.6-1

Financial Profile  
City of Sheridan  
FY 1981-1983

Item	FY 1981 (Audited Amounts)	FY 1982 (Actual or Estimated)	FY 1983 (Budgeted)
<b>Resources</b>			
Population			
Assessed Valuation			
Total	\$15,136	\$15,560	\$16,200
A.V. per Capita	\$30,354,254	\$32,438,571	\$33,561,458
Revenue per 1 Mill	\$2,005.43	\$2,084.74	\$2,071.69
Sales Tax Receipts	\$30,354	\$32,439	\$33,561
Sales Tax Per Capita per 1 Cent	\$2,111,855	\$1,496,317	\$1,996,300
Federal Revenue Sharing Receipts	\$141,876	\$64.15	\$61.61
		\$187,158	\$143,525
<b>Tax Rates</b>			
Sales Tax Rate			
State	3.0%	3.0%	3.0%
Optional County	1.0%	1.0%	1.0%
Use Tax Rate	5.0%	5.0%	5.0%
Share of County Sales Tax	60.5%	59.4%	60.0%
Property Tax Rates	10.350 mills	10.328 mills	10.328 mills
(Total Overlapping, if Available)			
General Purpose	8.000 mills	8.000 mills	8.000 mills
Special Purpose			
Debt Service: G.O. Water Bond	2.35 mills	2.328 mills	2.328 mills

TABLE 3.6.3.6-1 (cont.)

Financial Profile  
City of Sheridan  
FY 1981-1983

Item	1981		1982		1983	
	(Audited Amounts)		(Actual or Estimated)		(Budgeted)	
General Fund Position						
Total Revenue	\$5,755,087		\$6,874,083		\$6,666,400	
Percent Property Tax	4.8%		4.8%		5.1%	
Percent Sales Tax	36.6%		29.0%		29.9%	
Percent Use Tax	3.5%		3.9%		3.9%	
Percent Other Taxes	5.7%		5.3%		5.7%	
Percent Fees & Charges	10.0%		8.7%		9.1%	
Percent Other Local	10.7%		14.7%		9.3%	
Percent Non-Local	28.7%		13.0%		13.9%	
Percent Severance Taxes	0.0%		20.5%		21.2%	
Percent Other	0.0%		0.1%		1.9%	
Total Expenditures	\$5,741,670		\$6,914,480		\$8,179,458	
Expenditures per Capita	\$379.34		\$444.38		\$504.90	
Percent for O & M	56.2%		55.5%		53.2%	
Percent for Capital Outlay	41.0%		42.2%		45.3%	
Percent for Debt Service	2.8%		2.3%		1.5%	
Transfers						
From Other Funds	\$147,933		\$181,574		\$53,600	
To Utility Funds					0.0	
Fund Balance (Year-End)	\$13,417		\$(40,397)		0.0	
Enterprise Funds (Water and Sewer)						
Surplus (Deficit)						
Current Year Revenue - Expenditures	\$(23,127)		\$(18,147)		\$(1,300,047)	
Net Transfers in (Out)	0.0		0.0		0.0	

TABLE 3.6.3.6-1 (cont.)

Financial Profile  
City of Sheridan  
FY 1981-1983

Item	1981		1982		1983	
	(Audited Amounts)		(Actual or Estimated)		(Budgeted)	
Revenue Sources						
Percent Property Tax		0.0%		0.0%		0.0%
Percent Fees & Charges		48.4%		21.5%		9.9%
Percent PIFs		13.4%		5.8%		2.5%
Percent Other: Mainly Grants		38.2%		72.6%		87.6%
Do Expenditures Include Depreciation?		No		No		No
Debt Status						
Debits Outstanding						
G.O. a & Water						
Revenue		\$455,000		\$365,000		\$295,000 <sup>b</sup>
Annual Debt Service		\$920,000		\$960,000		\$890,000
G.O.						
Revenue		\$100,038		\$96,488		\$97,775
Remaining G.O. Capacity		\$159,896		\$151,450		\$161,700
		\$1,214,170		\$1,297,543		\$1,338,119

Source: City of Sheridan Budget, 1982-83, City of Sheridan, Wyoming.

<sup>a</sup>General obligation.

<sup>b</sup>On June 30, 1982.



in FY 1981, but fell short by \$200,000 in FY 1983. Recommendations to increase water and sewer rates are now under study. This may be required to meet increased operating costs due to new facilities. Capital expenditures are funded mainly by federal and state grants.

### Debt

Sheridan has no outstanding general fund bonds and therefore has a debt margin of 4 percent of the city's assessed value of \$1,338,000, or \$53,520.

### Conclusions

The city's dependence on sources of revenue not under local control could lead to financial problems in the future. While locally generated revenues are falling short or just meeting operating expenditures, nonlocal revenues are being used to build new capital facilities and supplement local revenues. These new facilities will increase future operating and maintenance costs. Any decreases in nonlocal revenues could strain the city's capacity to maintain current standards of operations.

## 3.6.4 Ranchester, Dayton, and Surrounding Area

### 3.6.4.1 General Description

This section describes the existing environment in the communities of Ranchester, Dayton, and the area around these two communities in the northern part of Sheridan County. The cities of Ranchester and Dayton, Wyoming are located in the north-central portion of Sheridan county. Ranchester is about fifteen miles northwest of the city of Sheridan, just off temporary I-90, and Dayton is six miles west of Ranchester. The communities are located close to the Bighorn Mountains to the west, while the remaining surrounding land is rolling hills and breaks covered by range grasses and a few trees. The climate can be best described as semiarid. Both communities are incorporated and have a mayor-city council form of government. Section 3.6.4.2 describes the area's population and economy. Section 3.6.4.3 portrays social life and cultural diversity in the area. The area's housing inventory is presented in Section 3.6.4.4. Facilities/services and fiscal conditions are described in sections 3.6.4.5 and 3.6.4.6, respectively.

### 3.6.4.2 Population and Economy

The 1980 population of the Ranchester-Dayton area was 1842 (7 percent of total county population). This area also underwent a significant change with the advent of energy development in the region. Traditionally, the area's economy has been based on agriculture, but in 1980, the largest employers were the services and mining sectors. As shown in Table 3.6.4.2-1 agriculture and construction now employ approximately the same number of people.

### 3.6.4.3 Social Life and Cultural Diversity

### Background

Both Ranchester and Dayton had long and colorful histories as western frontier towns. The two towns, developed as support sites for railroad tie camps in the nearby Bighorn Mountains, were established during the construction and expansion of the CB&Q railroad. Ranchester gained importance in the late 1800s as a receiving point and sawmill site for logs and ties collected at Dayton. The importance and size of both

TABLE 3.6.4.2-1

Employment by Industry by Place of Residence  
 Ranchester, Dayton  
 1980

Industry	Ranchester, Dayton		Sheridan County		Percent of Sector
	Number	Percent	Number	Percent	
Ag, Forestry and Fisheries	85	11.2	668	6.0	12.7
Mining	158	20.8	1,410	12.6	11.2
Construction	79	10.4	1,287	11.5	6.1
Manufacturing	30	4.0	376	3.3	8.0
TCPU <sup>a</sup>	49	6.4	985	8.8	5.0
Wholesale & Retail Trade	123	16.2	2,309	20.6	5.3
FIRE <sup>a</sup>	27	3.5	469	4.2	5.8
Services	186	24.5	3,333	29.8	5.6
Government	23	3.0	361	3.2	6.4
TOTAL EMPLOYMENT	760	100.0	11,198	100.0	6.8

Source: U.S. Department of Commerce, Bureau of Census, 1980.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

towns diminished in the twentieth century as mining and timber operations declined. By 1980, the two towns were heavily dependent upon employment outside the community (32 percent were employed in mining and construction), while residents of the surrounding area continued their employment in ranching.

Because of their close proximity and linkages to the city of Sheridan and their inclusion within Sheridan County, the discussion of social life and cultural diversity in Ranchester and Dayton should be viewed within the context of the discussions in sections 3.2.3, 3.6.2.2, and 3.6.3.3. The two communities are influenced to a great extent by the social, political, and economic environment created by the city of Sheridan and the county as a whole.

Both Ranchester and Dayton grew in population during the decade prior to the study period. Between 1970 and 1980, Ranchester's population rose from 208 to 655 persons (215 percent increase), while Dayton's 1980 population of 701 was 77 percent larger than its 1970 population of 396. Not all of this growth can be attributed directly to energy development. Both communities gained population from residents moving out of Sheridan; residents of Sheridan began to move to Ranchester and Dayton during the early 1970s. These people continued to work in Sheridan. In 1976, it was estimated that 50 percent of Dayton's new population was from Sheridan, while 50 percent was from in-migration due to coal development (Sheridan Press 1976). Ranchester also received some in-migration of retirees from both Wyoming and Montana. The coal-related population seems to have come from out of state, mostly Michigan and Wisconsin.

The growth in population had some effect on the social organization of the two communities.

#### Social organization

Diversity/complexity. During the 1970-1980 period, the social, economic, and political structures and processes of the two communities became more diverse and complex. The changes that occurred in social diversity/complexity were subtle, the most notable change resulting from the influx of a more diverse population. The new residents not only increased the range of backgrounds and experiences of the population it also lowered the median age, and decreased the relative percentage of persons over 65 years of age.

During the rapid growth of the 1970s, Ranchester attracted more transients than Dayton, in large part due to the differences between the two in mobile home ordinances and housing characteristics. Although Ranchester established a mobile home park, then added stipulations that mobile homes located within the community be on fixed foundations, it also had an RV park which attracted a number of temporary residents. Dayton's mobile home ordinance was more stringent, limiting mobile homes in the community to only those that were owner-occupied. The community thus effectively prevented the influx of a short-term transient population. Throughout this period, both communities appear to have accepted new residents who planned to make the community their permanent home.

During the 1970s, new businesses came into Ranchester and Dayton, but since they were similar in size and nature to the existing businesses, they caused little change in the characteristics of the communities' economy. Gas stations, restaurants, and other small businesses continued to dominate both communities. The economy of both communities remained oriented toward the summer tourist trade, the fall hunters, and the surrounding ranches, although an increasing proportion of community residents were employed in Sheridan, at the mines in Montana, or elsewhere in Sheridan County. In essence, the economic base of the communities has expanded horizontally, but there has been almost no change in the diversity of the towns' economies over the last decade.

Some substantial changes did occur in the political diversity/complexity of the communities, however. In the mid-1970s, responding to state and federal pressure, both communities established planning commissions. For small, rural communities such as Ranchester and Dayton, there is probably no action that separates the past and the future more clearly than the need for and establishment of a planning commission.

The initiation of community and land use planning represented a dramatic break with past tradition and ways of doing things. During this 1970-1980 period, both communities instituted zoning and land use plans. These changes resulted in a more formalized and complex decision-making process. Applications for subdivisions, for example, now had to be submitted to the planning commission, which, after a period of study, recommended approval or denial by the city council. Both communities adopted a deliberate plan to control growth. In 1979, Dayton placed a six-month moratorium on new subdivisions in order to "catch up." Because of these types of actions, the city governments in Dayton and Ranchester became stronger and better able to make and implement decisions, and the influence of government was extended to affect more aspects of the residents' lives.

In Ranchester, the November 1982 city council election provided another indication of the recent changes that were taking place in political diversity/complexity. In that election, a relative newcomer to Ranchester<sup>1</sup> was elected to the city council. He defeated two long-time residents by a wide margin. According to one informant, the major reason he won the election was that he was younger than his opponents (in his thirties) and therefore could better represent the younger population.

In summary, it is important to note that while some changes in social and economic diversity/complexity and more substantial changes in political diversity occurred during the 1970s, the expansion of coal mining and the accompanying population growth did not cause a fundamental change in the structure of the communities. Both were small, rural communities prior to the energy growth period, and both remained so in 1982. The changes described and discussed should not be overemphasized; the social organization in neither community was significantly different in the early 1980s than it was in 1970, especially considering the changes occurring at the national level over this period.

#### Stratification (distribution of resources, power, and status)

Those who moved into the two communities during the study period with the intent of making it their home appear to have been accorded status relatively equal to other residents. This was generally not true for transients who, if not as undesirable, were seen as having less than full community status. This is best illustrated by the fact that those interviewed uniformly said there were no social distinctions among people in the community. Indeed, people could not identify any distinct social groupings in the communities other than voluntary organizations.

Leadership in Dayton still is limited to the longtime residents, although newcomers find access to other positions, such as the volunteer fire department. In Ranchester, the election of the newcomer to the city council indicates that distribution of political resources and power is widening. In both communities, newcomers have run for school board positions, although they have not yet been successful. The interest of newcomers in the community suggests that the distribution of resources and status has and will continue to expand to include them.

#### Outside linkages

For individuals, social linkages outside the community are primarily composed of kinship and friendship networks. The influx of newcomers during the 1970s increased the proportion of community residents with strong ties to friends and family outside the community or immediate area. The strength and persistence of these outside linkages can have a dual effect. It can ease the period of transition by providing social contact and support while local ties are made, but it can also slow or inhibit the newcomer's inte-

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<sup>1</sup>He had lived there only about three years.

gration into a community. However, the reported level of integration newcomers have achieved in the communities indicates that new networks in the community are coming to replace the former networks of the newcomers.

In addition to personal social linkages, other social linkages are formed through voluntary organizations. Both communities have several organizations with national and regional headquarters in other places. These organizations include churches, the VFW, the Rotary, and Lions Club. Participation in these organizations introduces influences from outside the community into the lives and experiences of individuals. For newcomers, organizational membership can also serve as a mechanism for assimilation into the new community, since many allow the transfer of membership from one chapter to another.

Outside economic linkages, important to most communities, are critical to Dayton and Ranchester; without them, neither community would be able to exist. The economic linkages of Ranchester and Dayton extend over several dimensions.

First, both communities, but especially Ranchester, depend heavily upon tourism. This means that much of the economy and many of the residents depend upon outside money being spent in the community. The communities need to "sell themselves" to the outside world.

A second economic linkage is the shopping and employment patterns of the residents of Dayton and Ranchester. Since neither community has businesses that sell durable goods -- nor even many that sell non-durable goods such as clothing, records, and food -- residents go to Sheridan and Billings for much of their shopping. Many are employed in Sheridan or the mines in Big Horn County. The economic orientation of community residents is therefore not local, but outside of the community. This gives little impetus for new businesses to come into the area or for existing businesses to expand.

Finally, businesses in the communities belong to the Chamber of Commerce in Sheridan; they do not have their own local organization. This means that the chamber has a more regional than local outlook and orientation. Although participation in the larger organization facilitates regional coordination, it also means that the local businesses probably do not have as much voice in the Chamber as they would if the organization were locally based.

The relationship between Ranchester and Dayton is affected by the the school district's structure. The school district is structured so that all elementary students in the two communities go to school in Ranchester, while junior and senior high school students attend the junior/senior high school located in Dayton. According to Ranchester residents, this generates quite a bit of mutual community interest. However, the mayor of Dayton claims that there was a good deal of rivalry between the communities; to illustrate, he relates that he was having a drink in a bar with the mayor of Ranchester when someone approached them and said, "I never thought I'd see the two mayors having a drink together."

In terms of political linkages, the two communities have fairly dense ties; linkages increased during the 1970s. Both communities belong to the Wyoming Association of Municipalities (WAM), which is a state lobbying organization. The mayor of Dayton served on the WAM Board of Directors. However, neither community has much direct access to the state legislature as no one from the immediate area has been elected to serve as state legislator.

A significant aspect of political linkages is that both communities have been able to establish linkages with outside funding agencies -- such as the Farm Home Administration, HUD, EPA -- to obtain grants for community projects. Both communities put in new water systems with such monies. Ranchester was able to build a new town hall using Economic Development Agency funds. Applying for these grants forced the communities to look to the future, as most of the grant applications required some sort of estimation of future need.

Another important political linkage has been established between the local planning commissions and the Sheridan County planning office. Most of the planning commissions in the greater Sheridan area joined together to form the Sheridan Area Planning Agency (SAPA) that allowed local planners to tap into the professional expertise of the Sheridan County Commission and discuss mutual problems. SAPA was not able to maintain the support of the Sheridan County Commission, however, and was disbanded. It is the remnant of this agency, however, that makes application for many of the grants that are so important to community facility expansion.

#### Integration (coordination and cooperation)

There appears to be a surprisingly high degree of integration in the two communities, given their recent growth, emphasis on tourism, and roles as bedroom communities. This appears to result from two major factors. First, even with the growth of the 1970s, the communities are not large; therefore, it has remained possible for residents to recognize and know one another, for residents to feel a commonality (especially since the community is racially homogeneous), and for leaders to establish community goals and cooperative actions. Second, the newcomers have been well accepted. They therefore did not have to establish new groups or organizations to meet their needs but were able to move into already existing institutional and informal structures and to take part in community activities.

A good deal of political integration has been established and maintained. Both communities made decisions during the 1970s that ten years earlier would have caused a serious community schism. Zoning, planning commissions, and subdivision decisions were made with relatively little community conflict or opposition, and indeed with considerable community support. This implies that most community residents felt that some collective community action was needed to handle the growth and that these types of planning decisions provided effective mechanism to protect community goals.

#### Perceptions of the community

Residents generally report that they like living in Ranchester and Dayton. They enjoy the small size, the general informality, the honesty and trust among neighbors, as well as the attractive location. To the residents, these elements constitute the "quality of life" and contribute substantially to what makes living in the community worthwhile and attractive. For the most part, the growth of the 1970s is not felt to have seriously decreased these desirable attributes. Although there was some opposition to the growth and the attendant changes, such opposition came most strongly from the older, longtime residents. Nearly everyone else was reported to have supported and welcomed the growth.

Nevertheless, the growth has caused some change. The feeling of participation is beginning to fade more people move in. The fact that residents do not know other residents well is disturbing to many longtime residents. A gradual transition from a unified, coherent community to a collection of social groupings is just beginning. With this, the perception of the community is also changing; the sense of the community is beginning to be lost. A good indicator of this is the fear of vandalism. This is often expressed as one of the biggest changes in the community and is confounded by the lack of regular police protection. Police protection is contracted out to the county sheriff. An officer is assigned to patrol Ranchester and Dayton, but apparently does not come very often. Residents continue to leave doors and cars unlocked but are more cautious and concerned about the possibility of crime.

The changes that occurred during the study period are just beginning to be felt and interpreted by the residents of the communities. As more growth occurs, the perception of the community will change. For many, the changes in the social organization of the community will be considered negative, regardless of

the length of time they have lived in the community. The importance given to these aspects relative to that given to jobs and income will determine residents' overall evaluation of continued economic and population growth.

#### 3.6.4.4 Housing

As shown in Table 3.6.4.4-1, the 1980 housing mix in Ranchester, Dayton, and the surrounding area was composed of 65 percent single family-detached units, 14 percent multifamily units, and 21 percent mobile homes.

#### 3.6.4.5 Facilities and Services

##### Ranchester

The public facilities and services discussed for Ranchester include general government, water, sewer, fire protection, and library. (Davis, personal communication, October 1982.)

The 1980 census revealed that the population of Ranchester was 655 persons. The town has not grown in land area since its incorporation in 1911, and the original 320 acres have not been completely filled in. However, there have been three developments on the outskirts of the incorporated town in the last five years, and the town does provide municipal services to these areas although they have not been formally annexed. These recent developments are within one mile of the incorporated town boundary and are, therefore, required to go through the town's development process. Developer requirements for Ranchester include paved streets and water and wastewater mains of proper size. Park land is sometimes dedicated on a voluntary basis, but no formula for park dedication has been set. Sky Ranch Estates, a leisure home subdivision on the outskirts that provides facilities for private air transportation to each home, is now starting development. Seven homes are planned in the first of four developmental phases for the subdivision. (Davis, personal communication, October 1982.)

General government. Ranchester's general government activities -- administration, health, recreation, sanitation, and streets and alleys -- are funded from the town's general fund. In 1976, a grant from the Department of Commerce, Economic Development Administration, for \$242,000 was obtained for a municipal building. The 5,225 sq. ft. structure was completed in 1978 and houses the town's administrative offices, council chambers, the local branch of the county library (1,202 sq. ft.), and the museum. The construction costs included a paved parking lot and landscaping. The town's staff consists of one city clerk/treasurer and two maintenance/water personnel for a total of three. They maintain the streets and the town's parks. For equipment, the town has a new tractor used mostly for weed control. In the last two years, the town received \$55,000 in revenues from the optional one-percent sales tax, which is earmarked for purchasing new equipment. So far, a garbage truck, pickup truck, and typewriter have been purchased. (Davis, personal communication, October 1982.)

There are very few paved streets in Ranchester, but the streets are graded regularly. A special improvement district has been formed to pave one section of town. Two other special improvement districts have been discussed but are on hold due to the uncertainties caused by layoffs at the Spring Creek Mine in Montana. Newly developed sections of town have paving and storm water drainage. (Davis, personal communication, October 1982.)

There are three small parks in town containing playground equipment, one tennis court, one outdoor basketball court, and one softball field. The town maintains these parks but does not provide any recreation programming. The state operates and maintains Conner Battlefield. There is little commercial

TABLE 3.6.4.4-1  
 Ranchester, Dayton, and Area  
 Housing Units by Type  
 1980

Type of Unit	Number of Units	Percent of Year-round Units
Total Housing Units	689	
Year-round Units	686	100.0
Single-family Detached	447	65.2
Multifamily	96	14.0
Mobile Homes	143	20.8

Source: U.S. Department of Commerce, Bureau of the Census, Detailed Housing Characteristics for Wyoming, 1980.



recreation in Ranchester. Most residents pursue outdoor recreation activities such as hunting and fishing. (Davis, personal communication, October 1982.)

Ranchester contracts with the Sheridan County sheriff for police protection; the town pays \$6,900 annually for this service. The town does not have a resident deputy and therefore relies entirely upon periodic patrols. (Davis, personal communication, October 1982.)

Water. Ranchester's water source is the Tongue River. The water is chlorinated at the source and is then run to a 0.5 million gallon storage tank. The entire water system has been upgraded in the last three years at a cost of \$575,000. The town issued general obligation bonds for \$450,000 and was awarded a grant from the Wyoming Farm Loan Board for \$125,000. (Davis, personal communication, October 1982.)

The capacity of the system is 750 gallons per minute and can accommodate a population of 2,000 which exceeds population projections through 2015. Utilization averages 3.0 million gallons per month. August is the highest water utilization month; 5.8 million gallons were used in August 1982. Household use constitutes about 2.5 million gallons, with the remainder used for irrigation. (Davis, personal communication, October 1982.)

The town has 1898 water rights of thirteen cubic feet per second on the Tongue River. The service charge for water is \$8.00 per month for the first 2,000 gallons and five cents per 100 gallons in excess of 2,000 gallons. The tap fee is \$225, and the PIF is \$600. The water system is operated and maintained on a balanced budget. The chief of town maintenance and his assistant maintain the water system; they also see to all other town maintenance such as garbage collection and park maintenance. (Davis, personal communication, October 1982.)

Sewer. The Ranchester wastewater treatment system serves about 225 residences and 25 commercial/retail establishments. The service charge is \$4.00 a month for sewer service, plus \$1.00 per month for additional units of up to 10,000 gallons. The tap fee is \$25, and the PIF is \$600. The sewer system is operated and maintained on a balanced budget. The system has two cells totaling 3.2 acres (2.2 and 1.0). The lagoons are retention/evaporation ponds that are not aerated; both were constructed ten to twelve years ago. The original collection lines were laid in 1942. There are two lift stations in the system. There are no personnel assigned to operation of the town's wastewater treatment system, but maintenance personnel take periodic samples and send them to the Department of Environmental Quality (DEQ) as required. Collection lines have been replaced periodically as necessary. Improvements to the system, including \$195,192 for storm drainage facilities and \$250,000 to replace deteriorated, undersized sewer lines, were completed in November 1981. About seventy-five feet of line were replaced in the spring of 1982 at a cost of about \$1,500. (Davis, personal communication, October 1982.)

The sewer system is currently inadequate and is in regular violation of DEQ standards. The town is now undergoing condemnation proceedings to acquire ten acres to develop additional lagoons. The town hopes to expand the system in 1983 to accommodate a population of up to 2,000 by adding lagoon storage and new and larger collector lines. Grants for 75 percent of the land acquisition and site preparation costs have been obtained: \$150,000 from the Farm Loan Board and \$25,000 from the Farmers' Home Administration (FmHA). The other 25 percent must come from local sources. The town intends to request a grant for lagoon development as well. A study done by Pilch Engineering (Sheridan) estimated the construction cost for sewage treatment, sewer line rehabilitation, interceptor lines, and outfall lines to the lagoons to be \$636,436. Revenues from the one-percent sales tax are to be dedicated to sewer system improvements during the next two years. (Davis, personal communication, October 1982.)

Fire. Fire protection in Ranchester is provided by a Rural Fire District (RFD). The area of service was recently expanded to include a ten-mile radius around Ranchester. The RFD uses a two-bay building which is owned by the town; the building was constructed in about 1955 and is adequate to meet current needs. Another ranch building is being used as a station north of town close to the Montana border. The ISO rating is ten. (Johnson, personal communication, November 1982.)

Equipment owned by the RFD includes a 1980, 750-gallon pumper (\$60,000); a 1982, quick response, 4-wheel drive, 250-gallon pumper (\$41,000); and a 1965, 4-wheel drive, 250-gallon pumper (Johnson, personal communication, November 1982).

RFDs are limited by state statute to a three-mill levy; revenues generated for the last three years were unknown for FY 1981, \$14,983 for FY 1982, and \$22,000 for FY 1983. The current assessed valuation of the RFD is \$7,411,911. As noted earlier, the district boundaries were expanded in FY 1983; this caused the increase in mill-levy generated revenues. The RFD has a contract with Ranchester, whereby the town owns the fire building and pays the utilities and the RFD buys the equipment. The district has no bonded indebtedness, operates on an annual balanced budget, and earmarks \$7,000 annually for a capital depreciation fund. (Johnson, personal communication, November 1982.)

Library. A branch of the Sheridan County Fulmer Public Library is located in Ranchester and serves the entire Ranchester-Dayton area. The library is housed in Ranchester's municipal building (1,202 sq. ft.). The library has a collection of about 3,100 books and an annual circulation of about 13,500. Circulation in September 1982 was almost twice that of September 1981. The librarian attributes this to higher unemployment, citizens becoming accustomed to using the library, people seeking local recreation opportunities because of the higher cost of gas, the library's good selection of books and programs, and the school's new four-day schedule. The library is staffed by a full-time librarian who is assisted by sixteen hours per week of part-time help. The budget, included in the county library's budget, was \$4,136 for FY 1981, \$19,701 for FY 1982, and \$23,930 for FY 1983. The shift from part-time to full-time operation in FY 1982 accounts for the budget increase in FY 1981. (Patterson, personal communication, October 1982.)

#### Dayton

Dayton was incorporated in 1908. It now has a land area of about 300 acres; 50 acres containing two subdivisions have been annexed since 1975. Dayton has experienced significant population growth in the last ten years: the 1960 Census reported a population of 333, the 1970 Census reported 396, and the 1980 Census reported 701. (Badgett, personal communication, October 1982.)

Developer requirements for Dayton include paved streets, curb and gutter, and properly sized water and sewer main lines. Park dedication is optional. (Badgett, personal communication, October 1982.)

General government. The town's general fund supports town administration, streets, police, and recreation and parks. The town hall is a 375 sq. ft. building constructed in the 1940s. It is too small, and although the need for a new and larger municipal complex has been recognized, action has been postponed due to the slump in the economy. (Badgett, personal communication, October 1982.)

The town's staff consists of a clerk/treasurer and two persons in public works who operate the water, sewer, and garbage systems and perform street and park maintenance (Badgett, personal communication, October 1982).

Equipment includes two pickup trucks (1976 and 1979), a dump truck (1965), a grader (1960s), and a garbage truck with compactor (1974). All equipment is in good condition. (Badgett, personal communication, October 1982.)

In 1980, about half the streets in Dayton were paved (equivalent of twelve blocks), and a storm drainage system was installed. The cost of this project was \$350,000, of which \$50,000 went for the storm system. A grant from the Wyoming Farm Loan Board covered \$220,000; the balance was funded through a special improvement district. The streets in the two subdivisions annexed since 1975 are also paved. (Badgett, personal communication, October 1982.)

Park and recreation facilities in Dayton include a swimming pool and the Bicentennial Park. The swimming pool was constructed in 1981 at a cost of \$130,000; \$90,000 was a donation and the town contributed \$40,000. Admission fees are \$.50 for persons under thirteen and \$1.00 for ages thirteen to adult, yet with 7,000 admissions in 1982, operation and maintenance of the pool required a subsidy of \$7,000. The five-acre Bicentennial Park was developed in 1975 and 1976 on donated land. It contains a softball diamond, an open playing area, basketball court, playground equipment, and a picnic area along the river. The development cost was about \$70,000, of which \$35,000 was received as a grant from the Wyoming Outdoor Recreation Commission. The annual Dayton Park Days are held in the park. (Badgett, personal communication, October 1982.)

Dayton contracts with the Sheridan County sheriff for police protection; the town pays \$6,900 annually for this service. The sheriff patrols Dayton but does not have a resident deputy in the area. (Badgett, personal communication, October 1982.)

Water. Dayton extracts water out of the Tongue River. The town's water rights date back to 1908 and allow for five cubic feet of water per second. The water is treated about three miles southwest of town and then distributed via a ten-inch main and six-inch distribution lines. The entire system is gravity flow, there are no pumps. Storage capacity is 140,000 gallons. The system is designed to accommodate 1,500 to 1,700 people. (Badgett, personal communication, October 1982.)

In 1981, a \$300,000 expansion program began. The filtering/treating capacity was increased from 450 gpm to 1,200 gpm, storage was increased from 70,000 to 140,000 gallons, and the water collection system was improved. In 1979, \$150,000 from an EPA grant was used to replace 8,500 feet of two-inch line with six-inch line. The monthly water fees are \$2.25 for up to 2,250 gallons and \$4.00 per month for amounts over 2,250 gallons. The tap fee is variable; it includes a \$10 inspection fee, plus cost of materials. The PIF is \$650. (Badgett, personal communication, October 1982.)

The town uses about eighty-three million gallons of water per year. The highest utilization month is August. Nearly ten million gallons were used in August 1982. In most months, about 6.6 million gallons are used. (Badgett, personal communication, October 1982.)

Should growth occur in Dayton, water storage (250,000 to 300,000 gallons) closer to town would be desirable. The main problem, however, would be water pressure. (Badgett, personal communication, October 1982.)

Sewer. The sewer system consist of a two-cell lagoon of about 2.5 acres. The system was developed in 1968 and was intended to accommodate a population of 500. It is now over capacity. The entire system is gravity flow; there are no pump stations. There are about 250 hookups, monthly fees are \$3.50, and the tap fees and PIF are \$490. In 1968, the system (including some improvements to the water system) cost \$244,000; \$169,000 was loaned from FmHA and \$75,000 was a grant from FmHA. The town is now conducting a

study to determine how sewer service can be expanded. The water and sewer systems are budgeted together and are operated on a balanced budget. (Badgett, personal communication, October 1982.)

Fire. Fire protection in and around Dayton is jointly provided by a RFD and the town. The agreement between the town and the RFD stipulates that the RFD buy the equipment and that the town house and man the equipment. Additionally, the town buys oil and gas for fire vehicles, pays two-thirds of fire phone costs, pays half of the vehicle insurance, and pays the first \$750 maintenance costs for each vehicle. The RFD picks up the balances from their three-mill levy. Because the town pays for a portion of the costs associated with fire protection, town residents do not pay the three-mill fire district levy as do other residents in the RFD. (Badgett, personal communication, October 1982.)

The fire station is approximately 1,000 sq. ft. Equipment includes a 1974 fire truck; a 1981, 250-gallon, quick response pumper (purchased for \$40,000 with matching funds); and a 4-wheel drive, first responder unit for providing first aid. Additionally, the town purchased a 1964, 600-gallon pumper from the RFD. The number of volunteer firefighters fluctuates; currently there are fourteen. There are twelve to fifteen calls per year, the majority of which are grass fires. (Badgett, personal communication, October 1982.)

Solid waste. Garbage collection is operated by the town on an enterprise basis. Revenues and expenditures are balanced. The town owns a 1974 garbage truck with compactor; it paid about \$5,500 in 1982 for repairs. The town is setting aside funds from mineral severance tax revenues for a replacement truck. Refuse is collected and hauled to Sheridan's dump for disposal. Once-a-week collection fees are \$5.75 for residential and \$12.00 for commercial/retail pickups. (Badgett, personal communication, October 1982.)

#### 3.6.4.6 Fiscal

##### Financial profile - Ranchester

Table 3.6.4.6-1 gives a summary of financial data for Ranchester for FY 1981-83. This section describes Ranchester's financial condition and its ability to absorb future growth.

General fund. The town's assessed valuation increased by 15.3 percent between FY 1981 and 1983, which is a slightly below the rate of inflation (17.5 percent over the comparable period). During this time, the assessed valuation per capita increased only 7 percent. The town levies the maximum mill rate allowed by the state (8 mills) and does not levy any special purpose or debt service taxes. Revenues from property taxes account for only 4 percent of the town's total estimated revenues for FY 1983, a decline from 7 percent in 1980.

Sales and use tax receipts have accounted for an increasing proportion of total revenues, from 16 percent to 57 percent, and now constitute the single largest source of income. The one-percent optional countywide sales tax was renewed by the voters during the November 1982 election.

The FY 1983 budget shows that the town is relying less than before on nonlocal sources of revenue for its general fund expenditures. Anticipated receipts from the state general fund and federal revenue snaring, as a proportion of total revenues, declined from 22 percent in 1981 to 4 percent in 1983. Similarly, mineral royalties accounted for only 4 percent of total revenues in FY 1983.

General fund revenues exceeded expenditures in all three years. Expenditures per capita have risen 52 percent compared with the inflation rate of 17.5 percent. The proportion of expenditures going to capital

TABLE 3.6.4.6-1

Financial Profile  
 Ranchester, Wyoming  
 FY 1981-1983

Item	1981 (Budgeted)	1982 (Budgeted)	1983 (Budgeted)
<b>Resources</b>			
Population			
Assessed Valuation			
Totals	655	679	703
A.V. per Capita			
Revenue per 1 Mil	\$956,176	\$1,000,629	\$1,102,380
Sales Tax Receipts	\$1,460	\$1,474	\$1,568
Federal Revenue Sharing Receipts <sup>d</sup>	\$956	\$1,001	\$1,102
	\$49,732 <sup>b</sup>	\$85,674 <sup>b</sup>	\$130,962 <sup>c</sup>
	\$7,204	\$7,021	\$9,147
<b>Tax Rates</b>			
Sales Tax Rate			
State	3%	3%	3%
Local Optional	1%	1%	1%
Use Tax Rate	5%	5%	5%
Share of County Sales Tax	4%	3%	NA
Property Tax Rates	8 mills	8 mills	8 mills
General Purpose	8 mills	8 mills	8 mills

TABLE 3.6.4.6-1 (cont.)

Financial Profile  
Ranchester, Wyoming  
FY 1981-1983

Item	1981 (Budgeted)	1982 (Budgeted)	1983 (Budgeted)
<b>General Fund Position</b>			
Total Revenues <sup>e</sup>	\$144,044	\$213,513	\$230,128
Property Tax	\$9,800 (7%)	\$14,000 (7%)	\$9,500 (4%)
Sales and Use Tax	\$22,800 (16%)	\$82,523 (39%)	\$130,962 (57%)
Other Taxes	\$14,300 (10%)	\$10,800 (5%)	\$10,900 (5%)
Fees & Charges	\$19,200 (13%)	\$19,000 (9%)	\$22,000 (10%)
Other Local (Gen. Fund Interest)	\$6,498 (5%)	\$2,100 (1%)	0 (0%)
Non-Local (St. Gen. Fund Rev. Shar.)	\$32,204 (22%)	22,021 (10%)	9,147 (4%)
Mineral Royalties	\$17,000 (12%)	8,000 (4%)	8,000 (4%)
Cash on Hand	\$22,242 (15%)	55,069 (26%)	39,619 (17%)
Total Expenditures <sup>e</sup>	\$120,411	150,289	196,411
Expenditures per Capita	\$184	\$221	\$279
O & M	\$107,455	\$112,566	\$110,792
Capital Outlay	\$12,956	\$37,723	\$85,619
Debt Service			
Transfers			
From Utility Funds			
To Utility Funds			
Fund Balance (Year-end)	\$23,633	\$63,214	\$33,716
<b>Enterprise Funds (Water and Sewer)</b>			
Revenue Sources			
Fee & Charges	\$47,000	\$45,000	\$49,500
PIFS	\$1,250	\$1,000	\$1,000
Mineral Royalties & Severance Tax	\$5,000	\$64,446	\$91,624
Other <sup>f</sup>	\$543,091	\$287,092	\$413,859

--See below--

TABLE 3.6.4.6-1 (cont.)

Financial Profile  
Ranchester, Wyoming  
FY 1981-1983

Item	1981 (Budgeted)	1982 (Budgeted)	1983 (Budgeted)
Net Transfers In			
Expenditures <sup>e</sup>			
Operating & Maintenance			
Capital	\$48,250	\$51,150	\$57,296
Debt Service (from General Fund)	\$514,657	\$398,696	\$541,213
Do Expenditures Include	\$60,000	\$60,000	\$60,000
Depreciation (Yes/No)	Yes	Yes	Yes
Debt Status			
Debts Outstanding			
G.O.			
Revenue			
Annual Debt Service			
G.O.			
Revenue	\$60,000	\$60,000	\$60,000
FULLA (water and sewer)			
Remaining G.O. Capacity			

Sources: Municipal Budget, 1982-83, Ranchester, Wyoming.

Note: NA = not available.

<sup>d</sup>From Sheridan County Mill Levy Abstracts, 1980 and 1981.<sup>b</sup>Actual. From State of Wyoming, Department of Taxation, Annual Reports, 1981, 1982.<sup>c</sup>Estimated. Includes estimates of use tax; Town of Ranchester Budget, FY 1983.<sup>d</sup>Includes carryover from previous year.<sup>e</sup>From Town budgets FY 1981, 1982, 1983.<sup>f</sup>Includes grants, loans, bond financing and sales tax revenues listed under Water and Sewer Capital Improvements - Revenues, FY 1981, 1982, 1983 budgets. Cash on hand, severance tax and mineral royalty revenues are not included.

projects rose from 11 percent to 44 percent over the period. This is due mainly to anticipated purchases of new equipment (\$34,523 budgeted in FY 1982; \$82,962 budgeted in FY 1983) to be financed by receipts from the one-percent sales tax. Apart from street paving, the town's only anticipated capital expenditures are for water and sewer system improvements.

Utility fund. The utility fund supports the activities of the water and sewer departments. Over the past three years, combined operating and maintenance expenditures have outstripped revenues from user fees. General fund appropriations and mineral royalties have been used to make up the difference. The town has made extensive capital improvements to the systems, which it is financing through a bond issue from FmHA, numerous grants, and severance tax revenues. Annual debt service is greater than operating costs and revenues. It appears that a continued flow of outside funds will be needed to support these systems.

Debt service. Ranchester has no outstanding general fund bonds. However, there are two special improvement districts within the town in which bonds are being retired through local assessments.

Conclusions. While general fund revenues have been consistently greater than expenditures, the town is very dependent on nonlocal sources of income over which it has little control. This, combined with the fact these sources are not necessarily responsive to growth, could lead to financial problems in the future. The town has few options for increasing local sources of income; its population base limits its potential sales tax revenues, and its low assessed value limits not only its property tax revenues but also its bonding capacity.

Some attention needs to be given to water and sewer system fee structures to ensure that revenues are sufficient to cover existing operating and maintenance costs, plus those induced by system improvements currently underway. It appears that the town will have to depend on outside funding for future capital needs.

#### Dayton

Table 3.6.4.6-2 provides a summary of financial data for the town of Dayton for FY 1981-83. This section describes Dayton's financial condition and its ability to absorb future growth.

General fund. The town's assessed valuation increased only slightly between FY 1981 and 1983; the increase was 5.2 percent compared with an inflation rate of 17.5 percent. Because of this, and the population growth in the town, the assessed valuation per capita decreased over the period. The town levies the maximum mill rate allowed by the state but does not levy any special purpose or debt service taxes. Revenues from property taxes account for only 4 percent of the town's total estimated revenues for FY 1983.

The town's single most important source of revenue is coal/mineral severance taxes, the amount of which it cannot influence. In FY 1983 these revenues account for approximately 39 percent of total revenues, increasing from 27 percent in FY 1981. On the other hand, apart from state sales and use tax receipts, it does not rely on other nonlocal sources to finance general fund expenditures.

Sales and use tax receipts are the second most important sources of revenue, but their contribution to total revenues has been declining since FY 1981 (42 percent in FY 1981 to 33 percent in FY 1983).



TABLE 3.6.4.6-2

Financial Profile  
Dayton, Wyoming  
FY 1981-1983

Item	1981 (Budgeted)	1982 (Budgeted)	1983 (Budgeted)
<b>Resources</b>			
Population <sup>a</sup>	701	719	779
Assessed Valuation			
Totals	\$852,435	\$852,650	\$897,065
A.V. per Capita	\$1,216	\$1,186	\$1,196
Revenue per 1 Mill	\$852	\$853	\$897
Sales Tax Receipts	\$77,764 <sup>b</sup>	\$91,911 <sup>b</sup>	\$85,000 <sup>c</sup>
Federal Revenue Sharing Receipts	NA	NA	NA
<b>Tax Rates</b>			
Sales Tax Rate			
State	3%	3%	3%
County	1%	1%	1%
Use Tax Rate	5%	5%	5%
Share of County Sales Tax	7%	3%	NA
Property Tax Rates	8 mills	8 mills	8 mills
General Purpose	8 mills	8 mills	8 mills
<b>General Fund Position</b>			
Total Revenues <sup>d</sup>	\$146,600	\$206,900	\$256,600
Property Tax	\$7,500 (5%)	\$9,500 (5%)	\$11,000 (4%)
Sales Tax <sup>e</sup>	\$62,000 (42%)	\$75,000 (36%)	\$85,000 (33%)
Use Tax	\$7,000 (5%)	\$7,100 (3%)	\$12,000 (5%)
Other Taxes <sup>f</sup>	\$7,100 (5%)	\$8,200 (4%)	\$10,600 (4%)

TABLE 3.6.4.6-2 (cont.)

Financial Profile  
Dayton, Wyoming  
FY 1981-1983

Item	1981 (Budgeted)	1982 (Budgeted)	1983 (Budgeted)
Fee & Charges			
Other Local (Interest Y.)	\$18,000 (12%)	\$20,100 (10%)	\$30,000 (12%)
Non-Local (Coal & Mining Sev. Tax)	\$5,000 (3%)	\$6,000 (3%)	\$8,000 (3%)
Total Expenditures	\$40,000 (27%)	\$81,000 (39%)	\$100,000 (39%)
Expenditures per Capita	\$182,080	\$250,886	\$289,620
Percent for O & M	\$260	\$349	\$386
Capital Outlay	\$69,250 (38%)	\$148,386 (59%)	\$155,120 (54%)
Debt Service	\$99,330 (55%)	\$54,000 (22%)	\$47,500 (16%)
Transfers	\$13,500 (7%)	\$48,500 (19%)	\$87,000 (30%)
From Utility Funds			
To Utility Funds			
Fund Balance (Year-end)			
Enterprise Funds (Water and Sewer)			
Total Revenue Sources	\$61,000	\$57,200	\$50,400
Fees & Charges	\$38,000 (62%)	\$38,400 (70%)	\$42,000 (83%)
PIFs	\$15,000 (25%)	\$13,000 (21%)	\$5,000 (10%)
Other Hookup Materials	\$7,000 (12%)	\$4,000 (7%)	\$2,000 (4%)
Savings Interest	\$1,000 (2%)	\$1,800 (2%)	\$1,400 (3%)
Net Transfers In			
Expenditures			
Total	\$46,790	\$35,300	\$42,035
Operating & Maintenance	(70%)	(70%)	(75%)
Capital	(0%)	(0%)	(0%)
Debt Service	(30%)	(31%)	(25%)
Do Expenditures Include			
Depreciation?	No	No	No

TABLE 3.6.4.6-2 (cont.)

Financial Profile  
Dayton, Wyoming  
FY 1981-1983

Item	1981 (Budgeted)	1982 (Budgeted)	1983 (Budgeted)
Debt Status			
Debts Outstanding			
G.O.			
Revenue	\$96,390	NA	NA
	0	0	0
Annual Debt Service			
G.O. <sup>d</sup> - School Population	\$13,500	\$13,500	\$12,000
Revenue Bond	0	0	0
FmHA and Other Water & Sewer	\$14,090	\$10,760	\$10,535
FLB (Matching Funds)	0	\$35,000	\$75,000

Source: Town of Dayton, Municipal Budget, 1982-83.

<sup>a</sup>From Mayor Art Badgett, November 1982.

<sup>b</sup>Actual. State of Wyoming, Department of Revenue and Taxation, Annual Report, 1981, 1982.

<sup>c</sup>Estimate. Town of Dayton, Budget FY 1983.

<sup>d</sup>From town budgets.

<sup>e</sup>Includes state three-percent and optional one-percent tax.

<sup>f</sup>Includes cigarette, gasoline and farm-to-market taxes.

Note: NA= not available.

In all three years, general fund expenditures have outstripped revenues. Expenditures per capita have risen at a much faster rate than inflation (43.0 percent increase compared with 17.5 percent inflation). The proportion of expenditures going to capital items has declined over the period from 55 percent to 16 percent. Street paving has been a major capital expense.

Utility fund. The utility fund consists of the water and sewer departments. Revenues from fees and charges plus other sources (not including PIFs) have been covering operating, maintenance, and debt service expenditures. Expenditures over the past three years have decreased rather than increased. Currently, no capital expenditures are being budgeted. The town is repaying bonds, one of which was financed through FmHA. In the past two years the town has received a Farm Loan Board loan by contributing matching funds.

Debt service. The town is repaying a debt incurred to purchase property from the school district. Annual payments in FY 1982 totaled \$12,000.

Conclusions. The town's heavy dependence on severance tax monies could lead it into financial difficulties in the future as this is a nonlocal and unpredictable source of income. The town's small size limits its ability to derive revenue from both sales tax and property tax. The low assessed valuation also restricts the town's bonding capacity.

As local revenues are not covering general fund expenditures, the town will be dependent on outside sources of financing for major capital expenses.

### 3.6.5 Rest of County

#### 3.6.5.1 General Description

This section describes the predominantly rural part of Sheridan County not covered above in any other section. This area includes the Bighorn Mountains, the community of Story, and the eastern half of the county. The area's housing inventory is presented in Section 3.6.5.3.

#### 3.6.5.2 Population and Economy

There were 3,043 (12 percent of the county total) residents scattered throughout the rest of the county in 1980. Although the greatest relative share of its workers were employed in the agricultural sector, services, mining, TCPU, construction, and trade also employed significant numbers, illustrating the diverse impact of energy development in Sheridan County. Table 3.6.5.2-1 shows employment by industry for the rest of Sheridan County.

#### 3.6.5.3 Other Topical Areas of Importance

##### Housing

As shown in Table 3.6.5.3-1, 1,480 units or 73 percent of the rest of Sheridan County's 2,039 total units were classified as year-round units by the 1980 Census. Many of the nonyear-round units were located in Story and other summer resort areas. Of the year-round units, about 70 percent were single-family, 15 percent were multifamily, and 15 percent were mobile home units.

TABLE 3.6.5.2-1

Employment by Industry by Place of Residence  
Rest of County  
1980

Industry	Rest of County		Sheridan County		Percent of Sector
	Number	Percent	Number	Percent	
Ag, Forestry and Fisheries	270	20.5	668	6.0	40.4
Mining	192	14.6	1,410	12.6	13.6
Construction	143	10.9	1,287	11.5	11.1
Manufacturing	49	3.7	376	3.3	13.0
TCPU <sup>a</sup>	191	14.5	985	8.8	19.4
Wholesale & Retail Trade	139	10.6	2,309	20.6	6.0
FIRE <sup>a</sup>	45	3.4	469	4.2	9.6
Services	229	17.4	3,333	29.8	6.9
Government	56	4.3	361	3.2	15.5
TOTAL EMPLOYMENT	1,314	100.0	11,198	100.0	11.7

Source: U.S. Department of Commerce, Bureau of Census, 1980.

<sup>a</sup>TCPU - Transportation, Communications, Public Utilities; FIRE - Finance, Insurance, Real Estate.

TABLE 3.6.5.3-1  
Rest of Sheridan County  
Housing Units by Type  
1980

Type of Unit	Number of Units	Percent of Year-round Units
Total Housing Units	2,039	
Year-round Units	1,480	100.0
Single-family Detached	1,033	69.8
Multifamily	218	14.7
Mobile Homes	229	15.5

Source: U.S. Department of Commerce, Bureau of the Census, Detailed Housing Characteristics for Wyoming, 1980.

#### 4. BASELINE FORECAST





## 4. BASELINE FORECAST

### 4.1 Introduction

This chapter presents the baseline forecasts (excluding the effects of the proposed mines) for the Decker study region. The forecasts are based on the analysis of the existing environment, including current trends as verified by local key informants and other available information. Forecasts are presented for the region, its counties, and its communities and jurisdictions, with emphasis placed on the communities and jurisdictions that would be most affected by the proposed mines.

For each entity, population, economic, social life and cultural diversity, housing, facilities/services, and fiscal baseline forecasts are presented. In addition, transportation, outdoor recreation, and land use baseline forecasts are presented on a regional level.

The chapter is organized into six sections. Section 4.2 presents the assumptions used to make the baseline forecasts. Section 4.3 presents the baseline forecasts for the region. Section 4.4 presents the forecasts for Big Horn County and its communities. The baseline forecasts for the Crow and Northern Cheyenne Indian Reservations are presented in sections 4.5 and 4.6, respectively. Section 4.7 presents the forecasts for Sheridan County and its communities.

The study region (as demonstrated by this report) is facing an uncertain future. The potential for multiple, large-scale resource development projects significantly affects the decision-making environment in both Big Horn and Sheridan counties under baseline as well as with-project scenarios. Tables 4.1-1 through 4.1-8, which present a summary of the population forecasts by jurisdiction for each scenario, are included as an introduction to the discussion of the baseline forecast. These tables give an indication of the range of uncertainty (in terms of aggregate population size) facing those living and working within this region, and provide a context within which to interpret the baseline descriptions.

Throughout this report, it is important to maintain a sense of the time interval over which projections are being made. By 2015, the study area will have experienced energy development for 45 years -- along with all the other forces of history. Forecasting social and economic characteristics over this interval is equivalent to forecasting 1983 conditions from 1950 perspectives.

### 4.2 Assumptions

#### 4.2.1 Population and Economy

##### 4.2.1.1 Demographic Assumptions

##### Birth rates

During the 1970s, the composition of the Decker study region's population changed dramatically. Between 1970 and 1980, the proportion of women of childbearing ages (between 14 and 45 years) grew 12.3 percent annually. It can be inferred, therefore, that the increase in births is due more to a change in the demographic composition than to an increase in the likelihood of an individual woman to have children. For the forecast period, birth rates for both anglo and Indian populations are assumed constant.

TABLE 4.1-1

Alternative Population Forecasts for Big Horn County (Total)  
1980-2015

Year	Baseline	KME	Consol 1	Consol 2	Youngs Creek	Cumulative
1980	12,180	12,180	12,180	12,180	12,180	12,180
1985	12,797	12,801	12,797	12,797	12,797	12,802
1990	13,585	13,642	13,716	13,716	13,609	13,797
1995	14,308	14,368	14,445	14,445	14,338	14,531
2000	14,966	15,027	15,007	15,178	14,996	15,305
2005	15,673	15,719	15,673	15,887	15,722	16,011
2010	16,628	16,628	16,628	16,840	16,625	16,924
2015	17,843	17,843	17,842	17,943	17,843	18,004
Difference 1980-1990	1,405	1,462	1,536	1,536	1,429	1,617
Difference 1980-1995	2,128	2,188	2,265	2,265	2,158	2,351
Difference 1980-2015	5,663	5,663	5,662	5,763	5,663	5,824
Percent Change 1980-2015	46.5	46.5	46.5	47.3	46.5	47.8
Projected Impact						
1985		4	0	0	0	5
1990		57	131	131	24	212
1995		60	137	137	30	223
2000		61	41	212	30	339
2005		46	0	214	49	338
2010		0	0	212	-3	296
2015		0	-1	100	0	161

Source: Mountain West Research-North, Inc., 1982.

TABLE 4.1-2

Alternative Population Forecasts for Hardin  
1980-2015

Year	Baseline (Crow Indians Only)	Baseline	KME	Consol 1	Consol 2	Youngs Creek	Cumulative
1980	585	3,215	3,215	3,215	3,215	3,215	3,215
1985	644	3,300	3,300	3,300	3,300	3,300	3,300
1990	699	3,481	3,512	3,544	3,544	3,492	3,531
1995	748	3,665	3,697	3,730	3,730	3,678	3,715
2000	801	3,797	3,830	3,805	3,893	3,810	3,896
2005	864	3,940	3,974	3,940	4,045	3,961	4,046
2010	911	4,160	4,160	4,160	4,265	4,182	4,254
2015	1003	4,407	4,407	4,407	4,452	4,407	4,454
Difference 1980-1990	114	266	297	329	329	277	316
Difference 1980-1995	163	450	482	515	515	463	500
Difference 1980-2015	418	1,192	1,192	1,192	1,237	1,192	1,239
Percent Change 1980-2015	71.4	37.1	37.1	37.1	38.5	37.1	38.5
Projected Impact							
1985			0	0	0	0	0
1990			31	63	63	11	50
1995			32	65	65	13	50
2000			33	8	96	13	99
2005			34	0	105	21	106
2010			0	0	105	22	94
2015			0	0	45	0	47

Source: Mountain West Research-North, Inc., 1982.

TABLE 4.1-3

Alternative Population Forecasts for the Decker/Spring Creek Area  
1980-2015

Year	Baseline	KME	Consol 1	Consol 2	Youngs Creek	Cumulative
1980	205	205	205	205	205	205
1985	197	201	197	197	197	202
1990	203	207	223	223	208	331
1995	206	210	229	229	212	345
2000	204	209	226	247	210	374
2005	197	201	197	241	203	366
2010	207	207	207	251	213	355
2015	217	217	217	237	217	297
Difference 1980-1990	-2	2	18	18	3	126
Difference 1980-1995	1	5	24	24	7	140
Difference 1980-2015	12	12	12	32	12	92
Percent Change 1980-2015	5.8	5.8	5.8	15.6	5.8	44.9
Projected Impact						
1985		4	0	0	0	5
1990		4	20	20	5	128
1995		4	23	23	6	139
2000		5	22	43	6	170
2005		4	0	44	6	169
2010		0	0	44	6	148
2015		0	0	20	0	80

Source: Mountain West Research-North, Inc., 1982.

TABLE 4.1-4

Alternative Population Forecasts for the Crow Indian Reservation  
(Indian and non-Indian)  
1980-2015

Year	Baseline (Crow In- dians Only)	Baseline	KME	Consol 1	Consol 2	Youngs Creek	Cumulative
1980	4,792	6,758	6,758	6,758	6,758	6,758	6,758
1985	5,300	7,241	7,241	7,241	7,241	7,241	7,241
1990	5,753	7,719	7,735	7,750	7,750	7,730	7,744
1995	6,162	8,134	8,153	8,167	8,167	8,147	8,160
2000	6,611	8,563	8,581	8,582	8,614	8,577	8,614
2005	6,992	9,026	9,030	9,032	9,069	9,051	9,070
2010	7,439	9,582	9,600	9,600	9,635	9,596	9,632
2015	8,116	10,361	10,383	10,382	10,405	10,383	10,405
Difference 1980-1990	961	961	977	992	992	972	986
Difference 1980-1995	1,370	1,376	1,395	1,409	1,409	1,389	1,402
Difference 1980-2015	3,324	3,603	3,625	3,624	3,647	3,625	3,647
Percent Change							
1980-2015	69.4	53.3	53.6	53.6	54.0	53.6	54.0
Projected Impact							
1985			0	0	0	0	0
1990			16	31	31	11	25
1995			19	33	33	13	26
2000			18	19	51	14	51
2005			4	6	43	25	44
2010			18	18	53	14	50
2015			22	21	44	22	44

Source: Mountain West Research-North, Inc., 1982.

TABLE 4.1-5  
Alternative Population Forecasts for Sheridan County  
1980-2015

Year	Baseline	KME	Consol 1	Consol 2	Youngs Creek	Cumulative
1980	25,040	25,040	25,040	25,040	25,040	25,040
1985	27,145	27,581	27,172	27,172	27,145	27,601
1990	28,769	29,918	31,437	31,437	29,790	33,537
1995	29,386	30,516	32,026	32,026	30,475	34,182
2000	29,704	30,808	31,232	33,869	30,770	37,273
2005	29,517	30,242	29,388	33,681	30,583	37,003
2010	31,633	31,633	31,545	35,854	32,703	38,480
2015	31,507	31,507	31,479	33,500	31,507	35,243
Difference 1980-1990	3,729	4,878	6,397	6,397	4,750	8,497
Difference 1980-1995	4,346	5,476	6,986	6,986	5,435	9,142
Difference 1980-2015	6,467	6,467	6,439	8,460	6,467	10,203
Percent Change 1980-2015	25.8	25.8	25.7	33.8	25.8	40.7
Projected Impact						
1985		436	27	27	0	456
1990		1,149	2,668	2,668	1,021	4,768
1995		1,130	2,640	2,640	1,089	4,796
2000		1,104	1,528	4,160	1,066	7,569
2005		725	-129	4,164	1,066	7,486
2010		0	-88	4,221	1,070	6,847
2015		0	-28	1,993	0	3,736

Source: Mountain West Research-North, Inc., 1982.

TABLE 4.1-6

Alternative Population Forecasts for Sheridan City  
1980-2015

Year	Baseline	KME	Consol 1	Consol 2	Youngs Creek	Cumulative
1980	15,139	15,139	15,139	15,139	15,139	15,139
1985	16,320	16,606	16,337	16,337	16,320	16,617
1990	17,427	18,098	19,013	19,013	18,073	20,264
1995	17,854	18,504	19,403	19,403	18,544	20,680
2000	18,094	18,721	18,955	20,586	18,766	22,673
2005	18,005	18,416	17,933	20,499	18,667	22,533
2010	19,296	19,296	19,247	21,824	19,969	23,437
2015	19,219	19,219	19,204	20,412	19,219	21,478
Difference 1980-1990	2,288	2,959	3,874	3,874	2,934	5,125
Difference 1980-1995	2,715	3,365	4,264	4,264	3,405	5,541
Difference 1980-2015	4,080	4,080	4,065	5,273	4,080	6,339
Percent Change 1980-2015	27.0	27.0	26.9	34.8	27.0	41.9
Projected Impact						
1985		286	17	17	0	297
1990		671	1,586	1,586	646	2,837
1995		650	1,549	1,549	690	2,826
2000		627	861	2,492	672	4,579
2005		411	-72	2,494	662	4,528
2010		0	-49	2,528	673	4,141
2015		0	-15	1,193	0	2,259

Source: Mountain West Research-North, Inc., 1982.

TABLE 4.1-7

Alternative Population Forecasts for the Greater Sheridan Area (Excluding Sheridan)  
1980-2015

Year	Baseline	KME	Consol 1	Consol 2	Youngs Creek	Cumulative
1980	5,016	5,016	5,016	5,016	5,016	5,016
1985	5,488	5,604	5,497	5,497	5,488	5,610
1990	5,816	6,177	6,651	6,651	6,093	7,270
1995	5,943	6,306	6,789	6,789	6,237	7,427
2000	6,000	6,563	6,528	7,277	6,293	8,243
2005	5,903	6,141	5,859	7,181	6,191	8,120
2010	6,327	6,327	6,297	7,622	6,620	8,355
2015	6,301	6,301	6,291	6,912	6,301	7,407
Difference 1980-1990	800	1,161	1,635	1,635	1,077	2,254
Difference 1980-1995	927	1,290	1,773	1,773	1,221	2,411
Difference 1980-2015	1,285	1,285	1,275	1,896	1,285	2,391
Percent Change						
1980-2015	25.6	25.6	25.4	37.8	25.6	47.7
Projected Impact						
1985		116	9	9	0	122
1990		361	835	835	277	1,454
1995		363	846	846	294	1,484
2000		563	528	1,277	293	2,243
2005		238	-44	1,278	288	2,217
2010		0	-30	1,295	293	2,028
2015		0	-10	611	0	1,106

Source: Mountain West Research-North, Inc., 1982.



TABLE 4.1-8  
Alternative Population Forecasts for Ranchester/Dayton  
1980-2015

Year	Baseline	KME	Consol 1	Consol 2	Youngs Creek	Cumulative
1980	1,841	1,841	1,841	1,841	1,841	1,841
1985	1,978	2,011	1,980	1,980	1,978	2,013
1990	2,090	2,203	2,318	2,318	2,170	2,493
1995	2,143	2,258	2,376	2,376	2,226	2,558
2000	2,173	2,289	2,325	2,519	2,257	2,779
2005	2,066	2,142	2,054	2,412	2,149	2,664
2010	2,214	2,214	2,206	2,565	2,298	2,761
2015	2,206	2,206	2,204	2,371	2,206	2,504
Difference 1980-1990	249	362	477	477	329	652
Difference 1980-1995	302	417	535	535	385	717
Difference 1980-2015	365	365	363	530	365	663
Percent Change 1980-2015	19.8	19.8	19.7	28.8	19.8	36.0
Projected Impact						
1985		33	2	2	0	35
1990		113	228	228	80	403
1995		115	233	233	83	415
2000		116	152	346	84	606
2005		76	-12	346	83	598
2010		0	-8	351	84	547
2015		0	-2	165	0	298

Source: Mountain West Research-North, Inc., 1982.

#### Death rates

Between 1970 and 1980, the median age of the population in Sheridan County fell from 36.8 years to 29.8 years. During the same period, the median age for Big Horn County rose from 23.4 to 25.7 years (U.S. Bureau of the Census 1980). Median age for the nation's population was increasing during this decade. Because of this contrast between the two counties, the death rate is assumed constant over the forecast period.

As discussed in Section 2.3.1.4, net migration trends reflect that, although total net migration is relatively low, the direction and level of migration vary considerably by age category. In general, persons between 20 and 39 appear to be the most mobile, migrating with their children. Persons over 40 years of age show positive net migration, though at much lower rates than younger age groups. For these reasons, the total migration is projected to remain constant for the forecast period and respond principally to the availability of jobs in the study region.

#### Labor force participation rates

Between 1970 and 1980, the gross labor force participation rate for the Decker study region increased annually. In contrast, the rate for the nation grew only moderately between 1970 and 1980. In these forecasts, anglo labor force participation rates are assumed to converge to national forecasts. Indian participation rates are more difficult to forecast. According to the U.S. Census Bureau, in 1970, Indian labor force participation rates were so low that convergence to national rates would force Indian rates to grow faster than local anglo rates and national rates. Because of this consideration, the Indian labor force participation rate is held constant over the forecast period. However, despite this conservative assumption, the Indian labor force grows dramatically over the forecast period due to the natural increase and aging of the 1980 population.

#### Migration patterns of Crow Indians and non-Indians

The migration of Indians and anglos are treated differently. Based on research that MWR has conducted over the past ten years, it is clear that anglo migration is in response to both economic and noneconomic (e.g., college, military, retirement) stimuli. Those relationships are maintained here, so that some anglo migration in response to economic variables is expected to take place on the Crow Reservation. On the other hand, although Indian migration does occur, the factors that influence it are more unclear. Therefore, Crow (and Northern Cheyenne) migration by age and sex is assumed to maintain the same rate as during the 1970s, which was empirically estimated from census data for 1970 and 1980. Indian migration here is not specified as a function of economic variables.

#### 4.2.1.2 Economic Assumptions

The most important economic assumptions are forecasts of basic employment over the study period. Of these, the employment by firms associated with the construction and operations of coal mines most profoundly affects the county's economic future. In many instances, employment forecasts have been obtained from individual firms. These have been adjusted to a place-of-residence basis, largely based upon firm-specific interviews. To avoid disclosure, specific firms within an industry are discussed, but employment forecasts are presented by industry, on a place-of-residence basis.

Other important assumptions are based on wage rates and trading relationships. The latter are discussed in Section 2.3.1.4. Wage rates, in many instances, have been obtained by interviews with firms. Where firm-specific wages are unavailable, 1980 income per employee statistics for each industry

(U.S. Department of Commerce 1982) are used as a proxy and are held constant in real dollars. In all cases, wages and other income variables are converted to 1972 terms to control for inflation and then presented in 1980 dollars in the scenario forecasts. Detailed below are the basic employment assumptions for the Decker study region.

### Construction

Construction grew to significant levels in 1980 due to the Decker Mine, highway construction,<sup>1</sup> and contract construction in Sheridan. However, the slowdown in coal markets and completion of major projects has significantly reduced construction sector employment. Because of the recent slowdown, only planned construction activity is included in the baseline forecast of basic employment; these plans will require construction through 1983 and are principally in response to the completion of highway construction in Sheridan County. Other construction activity is in response to the proposed actions.

### Mining

All mining employment in the Decker study region is basic activity. Most employment is for coal mining; however, some oil-related activity is also present.

Oil production takes place in Big Horn County and on or near the Northern Cheyenne Reservation. The workers -- seismic crews -- are mainly nonlocal workers who temporarily reside in the county. The effect of oil exploration is problematic: if oil fields are discovered, a significant level of activity could result; if fields are not discovered, exploration will eventually cease. Because of the unpredictability of forecasting oil discoveries, it is conservatively assumed that 1980 oil-related employment will remain constant during the forecast period.

Four active coal mines are located in the Decker study region: the Absaloka Mine, Spring Creek Mine, Decker Mine, and the Bighorn Mine. All mines are currently experiencing declines in employment levels but are assumed to return to full production by 1985. All coal mining workers reside within the Decker study region and are principally concentrated in Sheridan and Hardin. Forecasts of coal mining employment were obtained from individual mining firms.

### Transportation, communications, and public utilities (TCPU)

The basic industries within the TCPU sector are rail (Burlington Northern, primarily in Sheridan) and trucking. In the baseline forecast, rail employment is mainly a function of coal-related traffic, although it is also affected by transport of other commodities. Rail employment is forecast to grow in direct proportion to the amount of coal produced in the study region.

Trucking in the Decker study region is mainly transporting construction materials and commerce. As such, a portion of it is an indirect basic industry. This basic portion of 1980 employment is projected to grow at 2 percent per year over the forecast period; these workers mostly live in Sheridan, with the balance in Hardin.

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<sup>1</sup>The construction of I-90 in Wyoming is included in the forecasts, but the I-90 construction in Montana (which was contracted for in 1983) is not.

## Agriculture

During the 1970s, the number of agricultural proprietors and laborers declined through 1975 and then stabilized through 1980. This trend should continue, remaining constant from 1980 to 1985, and then declining gradually through the balance of the forecast period. However, a decline in the number of proprietors merely means that land changes ownership; the amount of land in production may, in fact, remain constant and, therefore, produce a constant amount of income. Induced effects from proprietors' income should also remain constant. To account for this effect, total agricultural proprietors' income is held constant during the entire forecast period.

## Basic tertiary sectors

A large portion of the Decker study region's tertiary sector employment was associated with basic activity in 1980. Industries included some wholesale trade (related primarily to agriculture), travel-related retail trade and services, tribal government, federal government employment, and the Indian Health Service. Most basic wholesale trade is located in Sheridan and Hardin and is forecast to grow slightly between 1980 and 1985.

Travel-related retail trade and services are mainly located in Sheridan, with scattered establishments located in Hardin, Crow Agency, and Lodge Grass. Travel-related employment is assumed to grow slightly as a function of local purchases by temporary workers from seismic crews and from rail layover crews.

Despite federal cutbacks, tribal government employment is expected to grow slowly between 1980 and 1985. (Bullchief, personal communication, 1982.) Most basic federal government employment is for the Bureau of Indian Affairs and the Indian Health Service, located in Crow Agency and Lodge Grass, and is also expected to grow slowly to 1985.

### 4.2.2 Social Life and Cultural Diversity

A forecast of change in social life and cultural diversity over a 35-year period requires strong assumptions about the strength of on-going processes and trends. Aside from the assumptions discussed in Section 4.2.1, which are all important for the baseline social forecasts, an implicit assumption is made that major historical discontinuities will not occur over the forecast period -- no major national crises, no catastrophic natural disasters in the study area, and no technological/societal changes that would dramatically alter the bases of social relationships in the study region. As a consequence, the baseline forecasts regarding social life and cultural diversity should be considered conservative estimates of the potential change.

### 4.2.3 Housing

The housing demand forecasts depend on several key assumptions, all of which have been incorporated into the housing demand model described in Section 2.3.3, housing methodology. The assumptions can be summarized as follows:

- 1) Demand for new housing units will be a function of household formation and dissolution. Households are formed through changes in the existing population and from households that in-migrate from other places. Households are dissolved through changes in the existing population and through out-migration.
- 2) New household demand for specific types of housing will be a function of the type of household (i.e., married/spouse present, married/spouse absent, single), the age and sex of the household head, and whether the household is located in a community or in a rural area.

- 3) Demand for mobile homes and multifamily housing will increase over the projection period, while demand for single-family units will decline. These changes are very small and will differ by geographic area.
- 4) Nonlocal construction workers will have a housing demand mix that is different from current residents and permanent operations workers. For nonlocal construction workers who were married with family present, the demand mix was assumed to be: single-family units (70 percent), multifamily units (10 percent), and mobile homes (20 percent). The assumptions for married with family absent and single workers were: single-family units (45 percent), multifamily units (15 percent), and mobile homes (40 percent).

#### 4.2.4 Facilities and Services

The baseline projections draw on information in the existing environment section of this report and include planned improvements and/or expansions to the various public service systems. Existing service levels were used for making projections in most cases. However, when a service level was inadequate, commonly accepted standards were used. They are noted in the text on a case-by-case basis. In addition, the assumptions described in Section 2.3.4.5 also pertain to the baseline forecasts.

The baseline projections include capital improvements, personnel, and maintenance costs in 1982 dollars. Capital items are usually identified and discussed individually. Personnel and maintenance costs are included in the fiscal projections and balances.

#### 4.2.5 Fiscal

The fiscal assumptions used in the baseline forecasts were presented in sections 2.3.4 and 2.3.5.

#### 4.2.6 Transportation

The principal assumptions underlying the baseline transportation forecasts are the following:

##### Rail

- 1) Goods and unit coal train traffic would remain constant at 1982 levels through the forecast period.
- 2) The distribution, by main line, of 1982 unit train traffic would not change.

##### Road

- 1) Appropriate assumptions regarding roads and traffic on the federal, state and county networks will be made by the Montana Highway Department.
- 2) Traffic levels on primary reservation roads would increase proportionately with population growth, except between Busby and Colstrip, where the completion of Colstrip Unit No. 4 by 1986 will result in fewer home-work trips. ADT on US 212 between Busby and Lama Deer averaged about 1,150 vehicles (commercial traffic comprised 10-30 percent) during the 1979-1981 period with no identifiable trend (Montana Department of Highways, 1982). Between Busby and Decker, on FAS 314, the corresponding ADT was approximately 140 vehicles. The present mine employee survey (Mountain West Research-North, Inc., 1982) and other information from the existing mine operators indicates that few Northern Cheyenne are commuting from the reservation to the Decker area mines. Therefore, the baseline forecast assumes Northern Cheyenne commercial traffic and workers commuting along FAS 314

and connecting reservation roads to the Spring Creek and Decker mines to be limited to its present estimated three percent of ADT. It is also assumed that any improvements to FAS 314 due to allocation to the Northern Cheyenne of their share of the recently-passed 5 cents/gallon increase in the federal tax on gasoline and the Coal Board grant would not result in substantive changes in this traffic. The important traffic effects would occur with the employment opportunities opened by the proposed mines (see chapters 7, 8, 9 and 10). Since origin and destination data for total traffic on FAS 314 are not available, it has been assumed that ADT increases would be a function of total mine employment only.

#### 4.2.7 Outdoor Recreation

Specific assumptions used in the formation of baseline and impact projections, as well as more general methodological assumptions, are included in Section 2.3.7.1.

#### 4.2.8 Land Use

Particular assumptions used in the land use forecasts for baseline and with-project alternatives are described in this section. Other assumptions found in sections 4.2.1.1, 4.2.1.2, and 4.2.3 made with regard to the initial population, housing demand, and employment forecasts also apply.

First, acreage figures for the three categories of land use in two forecasts are gross acres, including transportation, utilities, and other necessary rights-of-way. Second, references to Big Horn County exclude the Crow Reservation. Additionally, land use estimate were made on the assumption that current land use patterns and densities will remain constant over the study period. It was also anticipated that some percentage of future demand for land may be accommodated through occupancy of existing structures or redevelopment of existing urbanized areas.

### 4.3 Regional Overview

#### 4.3.1 Introduction

This section, which is divided into eight subsections, presents a regional overview of the baseline forecasts. Section 4.3.2 presents the population and economic baseline forecasts. Section 4.3.3 discusses social life and cultural diversity under the baseline scenario. The baseline housing forecast for the region is summarized in Section 4.3.4. Facilities/services and fiscal forecasts are presented in sections 4.3.5 and 4.3.6, respectively. Section 4.3.7 presents a regional overview of the baseline transportation forecast. Finally, sections 4.3.8 and 4.3.9 present regional overviews of outdoor recreation and land use conditions under the baseline scenario.

#### 4.3.2 Population and Economy

As shown in Table 4.3.2-1, regional employment under the baseline scenario is forecast to rise from 17,418 persons in 1980 to 19,198 persons in 1990, a 10 percent increase. After 1990, total employment is forecast to increase at about the same rate, growing 10 percent between 1990 and 2000 and 9 percent between 2000 and 2010. Total 2015 employment of 23,593 persons represents a 35 percent increase over total employment in 1980.

As Table 4.3.2-2 shows, both regional basic and nonbasic employment are forecast to exhibit the same growth patterns as total employment. However, the ratio of nonbasic employment to basic employment is

TABLE 4.3.2-1

Baseline Scenario Forecast  
Total Employment by Sector  
Study Region

Year	Ag Propri etors	Ag Labor	Mining	Con struc tion	Manu factu ring	TCPU	Trade	FIRE	Ser vices	Gov ern ment	Other +com.	Total
1980	1017	861	1390	1837	572	628	3479	631	3363	3460	179	17418
1981	1017	861	1385	1593	567	635	3464	625	3374	3421	179	17125
1982	1017	861	1228	1582	566	662	3461	621	3381	3397	179	16959
1983	1017	861	1119	1563	567	672	3475	619	3402	3390	179	16867
1984	1017	861	1257	1540	585	726	3564	627	3470	3470	179	17300
1985	1017	861	1394	1528	601	745	3651	635	3547	3550	179	17711
1986	1015	861	1462	1530	614	772	3725	641	3611	3615	179	18028
1987	1014	861	1518	1542	625	782	3796	648	3697	3685	179	18351
1988	1012	861	1578	1550	635	792	3865	654	3772	3747	179	18649
1989	1011	861	1603	1555	644	800	3919	658	3842	3801	179	18875
1990	1009	861	1660	1566	655	810	3994	665	3929	3868	179	19198
1991	1008	861	1659	1570	661	805	4041	668	3999	3913	179	19367
1992	1006	861	1690	1579	670	813	4108	673	4084	3974	179	19641
1993	1005	861	1687	1583	678	820	4159	676	4156	4018	179	19824
1994	1003	861	1660	1586	684	825	4210	679	4229	4059	179	19977
1995	1002	861	1678	1596	694	834	4278	684	4322	4124	179	20255
2000	993	861	1613	1621	733	834	4583	701	4749	4393	179	21263
2005	983	861	1154	1592	760	856	4812	702	5055	4606	179	21657
2010	971	860	1055	1674	800	893	5274	741	5758	5010	179	23237
2015	963	860	495	1681	819	908	5527	764	6180	5212	179	23593

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 4.3.2-2

Baseline Scenario Forecast  
Employment by Type  
Study Region

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	17418	9412	8005	6315	51	1242	127	268
1981	17125	9272	7852	6494	53	1237	55	12
1982	16959	9153	7806	6607	55	1081	62	0
1983	16867	9088	7778	6688	58	973	57	0
1984	17300	9284	8015	6800	71	1111	32	0
1985	17711	9487	8224	6891	78	1248	6	0
1986	18028	9604	8424	7014	90	1315	3	0
1987	18351	9757	8593	7129	90	1370	3	0
1988	18649	9882	8767	7244	90	1428	3	0
1989	18875	9968	8907	7362	89	1452	3	0
1990	19198	10111	9087	7486	91	1506	3	0
1991	19367	10171	9195	7601	86	1504	3	0
1992	19641	10287	9354	7731	85	1533	3	0
1993	19824	10341	9482	7863	86	1529	3	0
1994	19977	10385	9592	8001	86	1500	3	0
1995	20255	10506	9748	8141	85	1517	3	0
2000	21263	10869	10393	8874	72	1443	3	0
2005	21657	10920	10736	9741	24	969	3	0
2010	23237	11660	11577	10697	16	861	3	0
2015	23593	11795	11798	11494	0	301	3	0

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.



forecast to decline from 117 to 100 in 1980 to 111 to 100 in 1990. This decline continues through 2015, when the nonbasic/basic employment ratio is forecast to be 100 to 100.

The regional population projections for the baseline scenario exhibit the same pattern as the employment forecast. As shown in Table 4.3.2-3, regional population is forecast to grow by 14 percent during the 1980s, by 5 percent during the 1990s, and by 8 percent during the first decade of the 2000s. The 2011 population of 49,350 people represents a 32 percent increase over the 1980 population and implies an average annual growth rate of 0.8 percent.

As shown in Table 4.3.2-4, total regional personal income under the baseline scenario is forecast to increase 33 percent from \$357 million in 1980 to \$477 million in 2015. However, commensurate population increases keep per capita personal income from increasing at a similar rate. In fact, per capita personal income is actually forecast to decrease from \$9,600 in 1980 to \$9,103 by 1990. It is then forecast to increase to \$9,283 by 2000 and \$9,537 by 2010.

#### 4.3.3 Social Life and Cultural Diversity

As described in Section 4.1, the residents and decision-makers of the study region face a period of continued uncertainty regarding the population size and economic conditions of the region. The current, depressed economy shows few signs of immediate recovery, making even baseline forecasts of revitalized coal activity and moderate population growth doubtful. Nevertheless, based on their experience during the 1970s, residents of the area are only too well aware of the inadequacies of economic forecasts, and the potential for major new mining activity in the area cannot avoid influencing the decision-making and social context of the region. As a consequence, residents of the region, particularly governmental officials and those with business interests, must constantly attend to state and national indicators that would indicate whether regional population will increase by a moderate 17.4 percent by 1995 or by a more dramatic 30.9 percent, as forecast if all three of the proposed projects are initiated. Residents' actions, as well as perceptions of the community, will be affected by these uncertainties and their awareness of the potential for nonlocal decisions to affect their communities and their lives.

If events occur as forecast in the baseline scenario, and population and employment in the region follow the patterns show in tables 4.3.2-1 and 4.3.2-3, it is likely that the changes initiated during the 1970s and described in Chapter 3 will be extended into the future, as population growth and expanded coal mining activities prevent the return to pre-1970 conditions. The pace of growth, however, is forecast to be much below that of the 1970s and will therefore allow residents to feel that they are making the changes more voluntarily and naturally than during the 1970s when many felt that the changes were being forced upon them and were too abrupt to be comfortable.

As the pace of change due to alterations in local conditions slows, as in the baseline forecast, the relative importance of national trends and issues will increase, especially given the region's enhanced communications links and ties to the wider society. This effect will be enhanced by the increased proportion of the region's population who are non-natives and who are in the younger age groups. The emerging emphasis on greater economic differentiation of the regional economy will also tend to support this trend.

At a regional level, much will also depend upon the manner in which relationships between the Crow, Northern Cheyenne, and anglo residents evolve. (For further discussion, see AITS 1983.) Based on the experience of the past century, it appears unlikely that the role and attitudes of the ranchers will substantially change, although their relative importance in the regional economy is forecast to continue to decline. Open country communities such as Decker, however, appear more subject to disruption by changing

TABLE 4.3.2-3

Baseline Scenario Forecast  
Population Change  
Study Region

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	37220	0	0	0	0	0
1981	38523	728	331	1028	-122	1303
1982	38780	750	337	-11	-143	257
1983	39005	743	337	-35	-145	225
1984	39223	719	337	-19	-143	218
1985	39942	706	334	482	-135	719
1986	40606	696	337	436	-131	664
1987	41043	693	341	220	-134	437
1988	41448	681	347	209	-138	404
1989	41788	671	351	160	-140	340
1990	42355	650	353	410	-140	567
1991	42517	641	357	20	-141	163
1992	42931	633	358	272	-134	413
1993	43180	636	360	110	-137	249
1994	43335	628	366	33	-140	155
1995	43694	623	368	247	-143	359
2000	44671	632	388	210	-151	302
2005	45190	643	393	356	-144	470
2010	48261	677	434	471	-133	581
2015	49350	711	447	-64	-134	66

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

TABLE 4.3.2-4

Baseline Scenario Forecast  
 Personal Income  
 Study Region  
 (1980 \$ 000)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita
1980	245959	13248	124585	7	357303	9600
1981	239400	12972	123463	7	349898	NC
1982	233372	12626	122731	7	343485	NC
1983	229537	12435	122560	7	339669	NC
1984	237741	12797	124016	7	348968	NC
1985	246404	13230	125545	7	358726	NC
1986	250531	13391	126523	7	363670	NC
1987	256565	13756	127888	7	370704	NC
1988	260919	14018	128839	7	375746	NC
1989	264191	14189	129370	7	379380	NC
1990	269623	14532	130459	7	385557	9103
1991	271511	14642	130879	7	387756	NC
1992	276124	14946	131442	7	392628	NC
1993	278220	15062	131422	7	394587	NC
1994	279571	15151	131527	7	395955	NC
1995	284435	15442	132396	7	401396	NC
2000	294718	16041	136173	7	414857	9287
2005	297916	16340	145340	7	426914	NC
2010	318123	17474	159588	7	460257	9537
2015	323467	17918	171463	7	477012	9665

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

The personal income figures do not include Crow dividends from royalties and a possible Crow Severance Tax.

NC = Not Calculated.

land use and employment patterns, dependent as they are upon the maintenance of continuity and of a stable, self-sustaining population. Within the study region, much of the change likely to be associated with the baseline energy activities appears to have already occurred.

As a consequence, the characteristics of social life under baseline conditions are forecast to be similar to those described in Section 3.3.2, but more firmly established and thoroughly infiltrated into the social organization and perceptions of area residents. More specific description of baseline conditions is provided in subsequent county and community discussions.

#### 4.3.4 Housing

Under baseline conditions, most of the new housing demand in the region would occur in Sheridan County, where it could easily be met by local developers and contractors. In Big Horn County, increases in housing demand would be met in most years by local suppliers. However, in some years, small deficits would occur. It is probable that Billings area contractors would be available to make up these deficits. On the Crow Indian Reservation, local Crow builders could keep pace with demand and temporary deficits would only occur in intermittent years. However, the ability of these suppliers to produce houses will be largely dependent on continued government support for housing construction.

#### 4.3.5 Facilities and Services

The public facilities and services will be discussed in the specific jurisdictional sections below as they do not lend themselves to a regional discussion.

#### 4.3.6 Fiscal

The state of Montana and the federal government, although not considered impact areas for the proposed mining developments would receive revenues from the projects. Most of these are based on annual production rates and the contract sale price per ton of coal produced. The state of Montana imposes a property tax levy based on the assessed value of the land and equipment owned by the mining companies. This section describes the revenue sources that would be received by the state under both the baseline and cumulative scenarios and the federal royalty payments on coal under the cumulative scenario. All revenue projections are in constant 1982 dollars.

##### 4.3.6.1 Montana Taxes

##### Property tax, including gross proceeds tax

The state of Montana imposes a 6-mill property tax on the gross proceeds of mining operations. Strip mines are assessed at a taxable value rate of 45 percent of gross proceeds (Class 2). As shown in Table 4.3.6.1-1, the state can expect revenues of approximately \$1 million per year under the baseline case between 1987 and 2003. As the baseline mining activity phases out, revenues would decrease to about \$360,000 in 2015.

As shown in Table 4.3.6.1-2, the additional property taxes contributed by the proposed mines in the cumulative scenario would peak between 2000 and 2004 when their incremental contribution to the state property tax would be approximately \$1.8 million per year. From 2004 through 2010, these mines would contribute about \$1.7 million per year over the baseline projections.

TABLE 4.3.6.1-1  
 Property Taxes  
 Baseline Mines  
 (millions of 1982 \$)

Year	Property Tax
1982	0.74
1983	0.73
1984	0.71
1985	0.82
1986	0.91
1987	1.00
1988	1.00
1989	1.10
1990	1.10
1991	1.10
1992	1.10
1993	1.20
1994	1.20
1995	1.20
1996	1.20
1997	1.20
1998	1.20
1999	1.00
2000	1.00
2001	1.00
2002	1.00
2003	1.00
2004	0.94
2005	0.64
2006	0.64
2007	0.64
2008	0.64
2009	0.64
2010	0.65
2015	0.36

Source: Briscoe, Maphis, Murray, and  
 Lamont, Inc., 1982.

TABLE 4.3.6.1-2

Incremental State Property Tax from KME,  
Consol 2, Youngs Creek and Tanner Creek Mines  
(1982 dollars)

Year	Taxable Value Increment	6-Mill Revenue
1982	6,000	36
1983	0	0
1984	0	0
1985	9,182,000	55,092
1986	27,657,000	165,942
1987	74,320,000	445,920
1988	103,959,000	623,754
1989	135,533,000	813,198
1990	157,275,000	943,650
1991	172,473,000	1,034,838
1992	172,495,000	1,034,970
1993	172,495,000	1,034,970
1994	172,488,000	1,034,928
1995	187,190,000	1,123,140
1996	187,224,000	1,123,464
1997	211,080,000	1,266,480
1998	264,790,000	1,588,740
1999	281,927,000	1,691,562
2000	296,391,000	1,778,346
2001	301,328,000	1,807,968
2002	306,396,000	1,838,376
2003	303,773,000	1,822,638
2004	278,334,000	1,670,004
2005	277,717,000	1,666,302
2006	277,956,000	1,667,736
2007	278,038,000	1,668,228
2008	278,252,000	1,669,512
2009	278,333,000	1,669,998
2010	278,350,000	1,670,100
2015	88,008,000	528,048

Source: Briscoe, Maphis, Murray, and Lamont, Inc., 1982.

Notes: Includes both corporate property and personal property; 6-mill levy was a constant project; the property tax projection includes the gross proceeds; does not include the baseline.

The combined effects of the baseline plus cumulative scenario mines would result in yearly revenues between \$2.1 and \$2.9 million per year for the years 1991 to 2003.

#### Coal severance tax

The coal severance tax is the single largest revenue generator for the state. It is calculated at a rate of 30 percent of the contract sales price per ton of coal produced each year. As shown in Table 4.3.6.1-3, revenues from the severance tax under the baseline scenario would reach a maximum of \$97.9 million per year between 1992 and 1997. From 1997 to the end of the projection period, the revenues would decrease until they reach a low of \$22.2 million per year in 2015.

Owing to the higher contract sales price of coal produced by the proposed mines, incremental revenues produced by the coal severance tax under the cumulative scenario would be quite high. As shown in Table 4.3.6.1-4, peak incremental revenues would total nearly \$150 million in 2002. Incremental revenues would remain above \$130 million per year between 1997 and 2010 and then decline to about \$32 million between 2011 and 2015 when only the Tanner Creek mine would be operating.

Adding the baseline and incremental revenues yields total cumulative scenario revenues of \$232 million in 2002, with revenues over \$200 million being generated between 1997 and 2003. By 2015, the total cumulative revenues would have decreased to \$57 million.

#### Resource indemnity trust tax

The resource indemnity trust tax is an annual tax equalling \$25 plus 0.5 percent of the gross value of coal resources in excess of \$5,000.

As shown in Table 4.3.6.1-5, the baseline mines are projected to generate a peak of \$1.6 million per year between 1992 and 1997, falling to approximately \$370,000 per year by 2015.

As shown in Table 4.3.6.1-6, the proposed mines would produce a peak of \$2.5 million in 2002. Over \$1 million per year would be generated between 1989 and 1997; over \$2 million would be generated between 1998 and 2010. About \$.5 million would be generated between 2011 and 2015.

Combined revenues from all mines in the baseline and cumulative scenarios reach a maximum of \$3.9 million in 2002 and fall to \$.92 million by 2015.

#### Corporate license tax

The corporate license tax is an income tax levied at the rate of 6.75 percent on the net income of corporations. For projection purposes, the net income of the mining corporations was assumed to be 15 percent of the gross income.

As shown in Table 4.3.6.1-7, this tax would reach a high of \$4.7 million per year under the baseline scenario from 1993 to 1998. It produces revenues over \$4 million per year between 1987 and 2004.

As shown in Table 4.3.6.1-8, the proposed mines in the cumulative scenario would produce a peak revenue of \$7.4 million per year in 2003. Revenues over \$6 million per year would be generated in the years 1999 to 2011.

TABLE 4.3.6.1-3

Coal Severance Tax  
Baseline Scenario  
(millions of 1982 \$)

Year	Absaloka	Decker	Spring Creek	Total Baseline
1982	9.3	41.5	7.4	58.2
1983	9.3	41.9	4.9	56.1
1984	8.9	50.0	7.4	66.3
1985	8.9	49.2	16.1	74.2
1986	8.9	52.3	24.5	85.7
1987	10.0	52.3	24.5	86.8
1988	13.3	53.1	24.5	90.9
1989	13.3	52.7	24.5	90.5
1990	17.8	52.7	24.5	95.0
1991	17.8	51.2	24.5	93.5
1992	22.2	51.2	24.5	97.9
1993	22.2	51.2	24.5	97.9
1994	22.2	51.2	24.5	97.9
1995	22.2	51.2	24.5	97.9
1996	22.2	51.2	24.5	97.9
1997	22.2	51.2	24.5	97.9
1998	22.2	35.7	24.5	82.4
1999	22.2	35.7	24.5	82.4
2000	22.2	35.3	24.5	82.0
2001	22.2	35.7	24.5	82.4
2002	22.2	35.7	24.5	82.4
2003	22.2	33.7	24.5	82.4
2004	22.2	0	24.5	46.7
2005	22.2	0	24.5	46.7
2006	22.2	0	24.5	46.7
2007	22.2	0	24.5	46.7
2008	22.2	0	24.5	46.7
2009	22.2	0	24.5	46.7
2010	22.2	0	24.5	46.7
2015	22.2	0	0	22.2

Source: Briscoe, Maphis, Murray, and Lamont, Inc., 1982.



TABLE 4.3.6.1-4  
Coal Severance Tax  
(millions of 1982 \$)

Year	Consol Level 1	Consol Level 2	KME	Youngs Creek	Tanner Creek	Total of Cumulative Scenario Mines
1986	9.8	9.8	9.0	0	0	18.8
1987	19.6	19.6	13.5	0	0	33.1
1988	29.4	29.4	13.5	6.4	0	49.3
1989	39.1	39.1	13.5	16.1	0	68.7
1990	39.1	39.1	13.5	25.7	0	78.3
1991	39.1	39.1	13.5	25.7	0	78.3
1992	39.1	39.1	13.5	25.7	0	78.3
1993	39.1	39.1	13.5	25.7	0	78.3
1994	39.1	39.1	13.5	25.7	0	78.3
1995	39.1	48.9	13.5	25.7	0	88.1
1996	39.1	48.9	13.5	25.7	0	88.1
1997	0	58.7	13.5	25.7	9.6	107.5
1998	0	78.3	13.5	25.7	16.1	133.6
1999	0	78.3	13.5	25.7	22.5	140.0
2000	0	78.3	13.5	25.7	25.7	143.2
2001	0	78.3	13.5	25.7	28.9	146.4
2002	0	78.3	13.5	25.7	32.1	149.6
2003	0	78.3	8.6	25.7	32.1	144.7
2004	0	78.3	0	25.7	32.1	136.1
2005	0	78.3	0	25.7	32.1	136.1
2006	0	78.3	0	25.7	32.1	136.1
2007	0	78.3	0	25.7	32.1	136.1
2008	0	78.3	0	25.7	32.1	136.1
2009	0	78.3	0	25.7	32.1	136.1
2010	0	78.3	0	25.7	32.1	136.1
2011	0	0	0	0	32.1	32.1
2012	0	0	0	0	32.1	32.1
2013	0	0	0	0	32.1	32.1
2014	0	0	0	0	32.1	32.1
2015	0	0	0	0	32.1	32.1

Source: Briscoe, Maphis, Murray, and Lamont, Inc., 1982.

Notes: Coal Severance Tax =  $0.3 \times \text{Contract sales price} \times \text{No. tons produced each year}$ . Contract sales prices, per ton, for each mine are:

- a. Consol Levels 1 and 2 -- \$16.31
- b. KME -- \$15.00
- c. Young and Tanner Creek -- \$10.90

TABLE 4.3.6.1-5  
Resource Indemnity Trust  
Baseline  
(millions of 1982 \$)

Year	Absaloka	Decker	Spring Creek	Total Baseline
1982	0.16	0.69	0.12	0.97
1983	0.16	0.70	0.08	0.94
1984	0.15	0.83	0.12	1.10
1985	0.15	0.82	0.27	1.24
1986	0.15	0.87	0.41	1.16
1987	0.17	0.87	0.41	1.45
1988	0.22	0.89	0.41	1.52
1989	0.22	0.88	0.41	1.51
1990	0.30	0.88	0.41	1.59
1991	0.30	0.85	0.41	1.56
1992	0.37	0.85	0.41	1.63
1993	0.37	0.85	0.41	1.63
1994	0.37	0.85	0.41	1.63
1995	0.37	0.85	0.41	1.63
1996	0.37	0.85	0.41	1.63
1997	0.37	0.85	0.41	1.63
1998	0.37	0.59	0.41	1.37
1999	0.37	0.59	0.41	1.37
2000	0.37	0.59	0.41	1.37
2001	0.37	0.59	0.41	1.37
2002	0.37	0.59	0.41	1.37
2003	0.37	0.56	0.41	1.34
2004	0.37	0.00	0.41	0.78
2005	0.37	0.00	0.41	0.78
2006	0.37	0.00	0.41	0.78
2007	0.37	0.00	0.41	0.78
2008	0.37	0.00	0.41	0.78
2009	0.37	0.00	0.41	0.78
2010	0.37	0.00	0.41	0.78
2015	0.37	0.00	0.00	0.37

Source: Briscoe, Maphis, Murray, and Lamont, Inc., 1982.

TABLE 4.3.6.1-6  
Resource Indemnity Trust  
(millions of 1982 \$)

Year	Consol Level 1	Consol Level 2	KME	Youngs Creek	Tanner Creek	Total of Cumulative Scenario Mines
1986	0.16	0.16	0.15	0.00	0.00	0.31
1987	0.32	0.32	0.23	0.00	0.00	0.55
1988	0.49	0.49	0.23	0.11	0.00	0.83
1989	0.65	0.65	0.23	0.27	0.00	1.15
1990	0.65	0.65	0.23	0.44	0.00	1.32
1991	0.65	0.65	0.23	0.44	0.00	1.32
1992	0.65	0.65	0.23	0.44	0.00	1.32
1993	0.65	0.65	0.23	0.44	0.00	1.32
1994	0.65	0.65	0.23	0.44	0.00	1.32
1995	0.65	0.82	0.23	0.44	0.00	1.49
1996	0.65	0.82	0.23	0.44	0.00	1.49
1997	0.00	0.98	0.23	0.44	0.16	1.81
1998	0.00	1.30	0.23	0.44	0.27	2.24
1999	0.00	1.30	0.23	0.44	0.38	2.35
2000	0.00	1.30	0.23	0.44	0.44	2.41
2001	0.00	1.30	0.23	0.44	0.49	2.46
2002	0.00	1.30	0.23	0.44	0.55	2.52
2003	0.00	1.30	0.14	0.44	0.55	2.43
2004	0.00	1.30	0.00	0.44	0.55	2.29
2005	0.00	1.30	0.00	0.44	0.55	2.29
2006	0.00	1.30	0.00	0.44	0.55	2.29
2007	0.00	1.30	0.00	0.44	0.55	2.29
2008	0.00	1.30	0.00	0.44	0.55	2.29
2009	0.00	1.30	0.00	0.44	0.55	2.29
2010	0.00	1.30	0.00	0.44	0.55	2.29
2011	0.00	0.00	0.00	0.00	0.55	0.55
2012	0.00	0.00	0.00	0.00	0.55	0.55
2013	0.00	0.00	0.00	0.00	0.55	0.55
2014	0.00	0.00	0.00	0.00	0.55	0.55
2015	0.00	0.00	0.00	0.00	0.55	0.55

Source: Briscoe, Maphis, Murray, and Lamont, Inc., 1982.

Note: Resource Indemnity Trust Tax = .005 x Contract sales price x  
No. tons produced each year.

TABLE 4.3.6.1-7

Corporate License Tax  
Baseline  
(millions of 1982 \$)

Year	Absaloka	Decker	Spring Creek	Total Baseline
1983	0.45	2.0	0.35	2.80
1984	0.45	2.0	0.24	2.69
1985	0.43	2.4	0.35	3.18
1986	0.43	2.4	0.78	3.61
1987	0.43	2.5	1.20	4.13
1988	0.48	2.5	1.20	4.18
1989	0.64	2.5	1.20	4.34
1990	0.64	2.5	1.20	4.34
1991	0.86	2.5	1.20	4.56
1992	0.86	2.4	1.20	4.56
1993	1.10	2.4	1.20	4.70
1994	1.10	2.4	1.20	4.70
1995	1.10	2.4	1.20	4.70
1996	1.10	2.4	1.20	4.70
1997	1.10	2.4	1.20	4.70
1998	1.10	2.4	1.20	4.70
1999	1.10	1.8	1.20	4.10
2000	1.10	1.8	1.20	4.10
2001	1.10	1.7	1.20	4.00
2002	1.10	1.8	1.20	4.10
2003	1.10	1.8	1.20	4.10
2004	1.10	1.7	1.20	4.00
2005	1.10	0.0	1.20	2.30
2006	1.10	0.0	1.20	2.30
2007	1.10	0.0	1.20	2.30
2008	1.10	0.0	1.20	2.30
2010	1.10	0.0	1.20	2.30
2011	1.10	0.0	1.20	2.30
2016	1.10	0.0	0.00	1.10

Source: Briscoe, Maphis, Murray, and Lamont, Inc., 1982.

TABLE 4.3.6.1-8

Corporate License Tax  
(millions of 1982 \$)

Year	Consol Level 1	Consol Level 2	KME	Youngs Creek	Tanner Creek	Total of Cumulative Scenario Mines
1987	0.47	0.47	0.43	0.00	0.00	0.90
1988	0.94	0.94	0.65	0.00	0.00	1.59
1989	1.40	1.40	0.65	0.32	0.00	2.37
1990	1.90	1.90	0.65	0.79	0.00	3.34
1991	1.90	1.90	0.65	1.30	0.00	3.85
1992	1.90	1.90	0.65	1.30	0.00	3.85
1993	1.90	1.90	0.65	1.30	0.00	3.85
1994	1.90	1.90	0.65	1.30	0.00	3.85
1995	1.90	1.90	0.65	1.30	0.00	3.85
1996	1.90	2.40	0.65	1.30	0.00	4.35
1997	1.90	2.40	0.65	1.30	0.00	4.35
1998	0.00	2.80	0.65	1.30	0.47	5.22
1999	0.00	3.80	0.65	1.30	0.79	6.54
2000	0.00	3.80	0.65	1.30	1.10	6.85
2001	0.00	3.80	0.65	1.30	1.30	7.05
2002	0.00	3.80	0.65	1.30	1.40	7.15
2003	0.00	3.80	0.65	1.30	1.60	7.35
2004	0.00	3.80	0.41	1.30	1.60	7.11
2005	0.00	3.80	0.00	1.30	1.60	6.70
2006	0.00	3.80	0.00	1.30	1.60	6.70
2007	0.00	3.80	0.00	1.30	1.60	6.70
2008	0.00	3.80	0.00	1.30	1.60	6.70
2009	0.00	3.80	0.00	1.30	1.60	6.70
2010	0.00	3.80	0.00	1.30	1.60	6.70
2011	0.00	3.80	0.00	1.30	1.60	6.70
2012	0.00	0.00	0.00	0.00	1.60	1.60
2013	0.00	0.00	0.00	0.00	1.60	1.60
2014	0.00	0.00	0.00	0.00	1.60	1.60
2015	0.00	0.00	0.00	0.00	1.60	1.60

Source: Briscoe, Maphis, Murray, and Lamont, Inc., 1982.

Note: Corporate License Tax = .0675 x Gross sales x Percent of net income. Gross sales = No. tons/year x Gross price/ton. Gross prices for each mine are:

a. Consol Levels 1 and 2 -- \$23.30

b. KME -- \$21.43

c. Young and Tanner Creek -- \$10.90

Percent of net income is assumed to be 15%.

All of the mining projects in the baseline and cumulative scenarios yield peak revenues of \$11.4 million in 2003. Annual revenues average about \$10 million from 1998 to 2004.

#### Total revenues

As shown in Table 4.3.6.1-9, all revenues derived from the baseline mines during the entire projection period would total \$2.4 billion.<sup>1</sup> As shown in Table 4.3.6.1-10, the cumulative scenario mines would generate an additional \$2.9 billion dollars from 1985 to 2015. As shown in Table 4.3.6.1-11, projections indicate that if all proposed mines become operational, the state would have received cumulative revenues of \$5.3 billion by 2015.

#### Current distribution of revenues

The state levied 6-mill property tax is earmarked for the University Millage Fund which supports the state university system. Portions can be used for other educational purposes.

The coal severance tax is distributed according to the formula adopted for use in 1980 (Thompson 1980).

Coal Trust Fund	50%
State General Fund	19.50%
Local Impact and Education Fund	18.25%
Other uses	12.25%

Revenues received from the resource indemnity trust fund tax are placed in the trust and legacy fund.

The corporate license tax is divided among the school foundation program (25 percent), bond retirement sinking funds (11 percent), and the general fund (64 percent).

#### 4.3.6.2 Federal Royalty Payments

A number of the mines in the baseline and with-project scenarios have leases on federal coal: Big Horn, Decker, Spring Creek, KME (Wolf Mountain), and Consol (CX). Table 4.3.6.2-1 shows the royalty payments that would accrue to the federal government under the mine production assumed for the cumulative scenario. Federal royalty revenues would exceed \$100 million from 1992 through 1995, and would be greater than \$30 million from 1986 through 2014.

#### 4.3.7 Transportation

This section presents the baseline and impact forecasts for rail and road transportation. The impact forecasts are presented here in order to avoid repetition in subsequent chapters.

##### 4.3.7.1 Rail

The Burlington Northern (BN) east-west mainline through Montana east of Huntley averages four merchandise trains per day and one unit coal train per day, in each direction. This is the equivalent of thirty-

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<sup>1</sup>This figure includes state royalty taxes from the Absaloka Mine as shown.

TABLE 4.3.6.1-9

Total Revenues by Category  
Baseline Mines  
(millions of 1982 \$)

Year	Property Tax	State Royalty (Absaloka Mine)	Coal Severance	RIDT	Corporate License	Total
1982	0.74	0.21	58.2	0.97	2.80	62.92
1983	0.73	0.17	56.1	0.94	2.80	60.74
1984	0.71	0.17	66.3	1.10	2.69	70.97
1985	0.82	0.17	74.2	1.24	3.18	79.61
1986	0.91	0.26	85.7	1.16	3.61	91.64
1987	1.00	0.35	86.8	1.45	4.13	93.73
1988	1.00	0.35	90.9	1.52	4.18	97.95
1989	1.10	0.52	90.5	1.51	4.34	97.97
1990	1.10	0.52	95.0	1.59	4.34	102.55
1991	1.10	0.70	93.5	1.56	4.56	101.42
1992	1.10	0.70	97.9	1.63	4.56	105.89
1993	1.20	0.52	97.9	1.63	4.70	105.95
1994	1.20	0.00	97.9	1.63	4.70	105.43
1995	1.20	0.00	97.9	1.63	4.70	105.43
1996	1.20	0.00	97.9	1.63	4.70	105.43
1997	1.20	0.00	97.9	1.63	4.70	105.43
1998	1.20	0.00	82.4	1.37	4.70	89.67
1999	1.00	0.00	82.4	1.37	4.10	88.87
2000	1.00	0.00	82.0	1.37	4.10	88.47
2001	1.00	0.00	82.4	1.37	4.00	88.77
2002	1.00	0.00	82.4	1.37	4.10	88.87
2003	1.00	0.00	82.4	1.34	4.10	88.84
2004	0.94	0.00	46.7	0.78	4.00	52.42
2005	0.64	0.00	46.7	0.78	2.30	50.42
2006	0.64	0.00	46.7	0.78	2.30	50.42
2007	0.64	0.00	46.7	0.78	2.30	50.42
2008	0.64	0.00	46.7	0.78	2.30	50.42
2009	0.64	0.00	46.7	0.78	2.30	50.42
2010	0.65	0.00	46.7	0.78	2.30	50.43
2015	0.36	0.00	22.2	0.37	1.10	24.03
Total	27.66	4.64	2,227.7	36.84	108.69	2,405.53

Source: Briscoe, Maphis, Murray, and Lamont, Inc., 1982.

TABLE 4.3.6.1-10

Cumulative Totals  
(millions of 1982 \$)

Year	Property Tax	Coal Severance	Resource Indemnity	Corporate License	Total
1985	0.06	0.0	0.00	0.00	0.06
1986	0.17	18.8	0.31	0.00	19.28
1987	0.45	33.1	0.55	0.90	35.00
1988	0.62	49.3	0.83	1.59	52.34
1989	0.81	68.7	1.15	2.37	73.03
1990	0.94	78.3	1.32	3.34	83.90
1991	1.00	78.3	1.32	3.85	84.47
1992	1.00	78.3	1.32	3.85	84.47
1993	1.00	78.3	1.32	3.85	84.47
1994	1.00	78.3	1.32	3.85	84.47
1995	1.10	88.1	1.49	3.85	94.54
1996	1.10	88.1	1.49	4.35	95.04
1997	1.30	107.5	1.81	4.35	114.96
1998	1.60	133.6	2.24	5.22	142.66
1999	1.70	140.0	2.35	6.54	150.59
2000	1.80	143.2	2.41	6.85	154.26
2001	1.80	146.4	2.46	7.05	157.71
2002	1.80	149.6	2.52	7.15	161.07
2003	1.80	144.7	2.43	7.35	156.28
2004	1.70	136.1	2.29	7.11	147.20
2005	1.70	136.1	2.29	6.70	146.79
2006	1.70	136.1	2.29	6.70	146.79
2007	1.70	136.1	2.29	6.70	146.79
2008	1.70	136.1	2.29	6.70	146.79
2009	1.70	136.1	2.29	6.70	146.79
2010	1.70	32.1	2.29	6.70	146.79
2015	0.53	32.1	0.55	1.60	34.78
Total	33.48	2,687.4	45.22	125.22	2,891.32

Source: Briscoe, Maphis, Murray, and Lamont, Inc., 1982.



TABLE 4.3.6.1-11

Total Revenues  
Baseline and Alternatives  
(millions of 1982 \$)

Year	Baseline	Alternatives	Total
1982	62.92	0.00	62.92
1983	60.74	0.00	60.74
1984	70.97	0.00	70.97
1985	79.61	0.06	79.67
1986	91.64	19.28	110.92
1987	93.73	35.00	128.73
1988	97.95	52.34	150.29
1989	97.97	73.03	171.00
1990	102.55	83.90	186.45
1991	101.42	84.47	185.89
1992	105.89	84.47	190.36
1993	105.95	84.47	190.42
1994	105.43	84.47	189.90
1995	105.43	94.54	199.97
1996	105.43	95.04	200.47
1997	105.43	114.96	220.39
1998	89.67	142.66	232.33
1999	88.87	150.59	239.46
2000	88.47	154.26	242.73
2001	88.77	157.71	246.48
2002	88.87	161.07	249.94
2003	88.84	156.28	245.12
2004	52.42	147.20	199.62
2005	50.42	146.79	197.21
2006	50.42	146.79	197.21
2007	50.42	146.79	197.21
2008	50.42	146.79	197.21
2009	50.42	146.79	197.21
2010	50.43	146.79	197.22
2015	24.03	34.78	58.81
Total	2,405.53	2,891.32	5,296.85

Source: Briscoe, Maphis, Murray, and Lamont, Inc., 1982.

TABLE 4.3.6.2-1  
Federal Royalty Payments  
(thousands of 1982 \$)

Year	Big Horn	Decker	Spring Creek	Wolf Mountain	Consol	Total
1983	0	\$1,063	\$280	0	0	\$1,343
1984	0	13,805	420	0	0	14,225
1985	\$138	13,983	4,988	0	0	19,109
1986	821	15,711	13,780	0	0	30,312
1987	1,016	27,854	13,780	\$5,358	0	48,008
1988	166	28,354	13,780	7,801	\$5,500	55,601
1989	0	28,074	13,780	8,036	11,000	66,890
1990	0	28,031	13,780	8,036	16,500	69,347
1991	0	27,005	13,780	8,036	22,100	70,921
1992	0	26,822	13,780	38,643	22,100	101,345
1993	0	26,883	13,780	38,643	22,300	101,606
1994	0	25,096	13,780	38,643	22,800	100,319
1995	0	25,523	13,780	38,643	22,900	100,846
1996	0	26,822	13,780	38,643	16,900	96,145
1997	0	23,917	13,780	19,535	25,000	82,232
1998	0	17,848	13,780	19,535	24,500	75,663
1999	0	15,253	13,780	19,535	32,600	81,168
2000	0	15,083	13,780	19,535	37,700	86,098
2001	0	12,633	13,780	19,535	34,100	80,048
2002	34	14,480	13,780	3,461	33,100	63,855
2003	1,056	14,069	13,780	3,461	43,000	75,366
2004	1,116	0	13,780	3,461	43,700	53,057
2005	592	0	13,780	0	43,900	58,272
2006	0	0	13,780	0	47,100	60,880
2007	0	0	13,780	0	47,500	61,280
2008	0	0	13,780	0	47,700	61,480
2009	0	0	13,780	0	47,700	61,480
2010	0	0	13,780	0	47,700	61,480
2011	0	0	13,780	0	47,700	61,480
2012	0	0	13,780	0	47,700	61,480
2013	0	0	0	0	47,700	47,700
2014	0	0	0	0	47,700	47,700
2015	0	0	0	0	0	0

Based on FOB prices per ton:

Big Horn	\$15.00 (est.)
Decker	18.07
Spring Creek	15.75
Wolf Mountain	21.43
Consol	23.30

Based on the following royalty rates:

Big Horn	12.5% FOB
Decker	15 or 20¢/ton (depending upon lease, then) 12.5% FOB
Spring Creek	20¢/ton, then 12.5% FOB
KME	12.5% FOB
Consol	Royalties calculated by Consol

Source: Briscoe, Maphis, Murray, and Lamont, 1983.

five trains per week in each direction. The BN mainline from Huntley south through Big Horn County to Sheridan handles nine to ten merchandise trains per day and two unit coal trains each direction, or a total of about seventy-five trains per week. From Sheridan, the BN mainline runs eastward through Clearmont to Campbell County. This line averages about four trains per day each direction, or thirty trains per week.

No recent forecasts of rail traffic on these lines have been identified. Consequently, it has been conservatively assumed that these traffic volumes will remain constant through the forecast period, in the absence of Decker area mine developments. Thus, baseline future rail traffic has been assumed to equal present traffic.

#### Tonnages/destinations

Table 2.2.6.1-1 showed the peak production levels of coal expected for each of the three proposed mines and the possible expansions of Consol Level and Youngs Creek mines; the table also indicated the number of unit trains required to haul the coal.

Approximately one half of the 3 million tons per year of coal produced at the KME Mine is expected to be shipped south through Wyoming; the other 1.5 million tons per year would move north through Big Horn County to the Midwest. The coal from the Youngs Creek Mine is planned for sale to the Midwest and would be shipped north through Big Horn County.

Thus, beginning in 1998, a peak of 27.5 million tons per year (mmt) would be shipped through Big Horn County to points in the Midwest. One and a half million tons per year would be shipped south on the BN mainline through Wyoming, assuming that coal from the Consol Mine would be shipped east. If Consol coal is shipped south, a total of 17.5-18 mmt would be shipped through Big Horn County during 1998-2013 and, at peak, 11.5 mmt would be shipped south through Sheridan County.

#### Number of unit trains, routes

Table 4.3.7.1-1 shows the tonnage and number of unit trains that would be shipped east via Big Horn County and south through Sheridan County -- assuming that coal from the Consol Mine would be sold in the Midwest or in eastern states. Table 4.3.7.1-2 presents the same information under the alternative assumption that Consol coal is sold and shipped to southern destinations.

An estimated 2,750 to 2,800 additional unit coal trains per year would be required to move coal from the Consol, KME, and Youngs Creek mines through Big Horn County to the BN east-west mainline at Huntley during 1998 to 2013. One hundred and fifty coal trains per year would haul coal south from the KME Mine via the BN line east of Sheridan.

As shown in Table 4.3.7.1-2, coal from the Consol Mine would be shipped south, and Big Horn County would realize a peak increase in unit trains of 1,750 to 1,800 between 1998 and 2013. An additional 1,150 unit trains would move through Sheridan County during 1996 and 2006.

#### Impacts

The primary impact from the increased number of coal trains would be vehicular traffic delays at "at grade" railroad crossings. A unit train would take approximately four minutes to clear a crossing in an urban area, and one to two minutes in rural areas where trains travel at faster speeds. The delays would

TABLE 4.3.7.1-1

## Movement of Coal Trains from Proposed Mines

Year	Million Tons per Year					Trains per Year	Trains per Week
	Consol Level 1	Consol Level 2	KME	Youngs Creek	Tanner Creek		
<u>Via Big Horn County</u>							
1987	1	1	1	4		7	14
1990	8	8	1.5	8		17.5	34
1996		10	1.5	8		19.5	38
1998		10	1.5	8	10	27.5	53
2007		10	0	8	10	28	54
2013		10	0	8	10	28	54
2014		0	0	0	10	10	19
<u>Via Sheridan County</u>							
1987							
1989			1			1	2
1997			1.5			1.5	3
1998			0			0	0

Source: Mountain West Research—North Platte

Source: Mountain West Research-North, Inc., 1982.

Note: Assumes that coal from the Consol Mine is shipped to the Midwest via Big Horn County.

TABLE 4.3.7.1-2

## Movement of Coal, Unit Trains from Proposed Mines

Year	Million Tons per Year					Trains per Year	Trains per Week
	Consol Level 1	Consol Level 2	KME	Youngs Creek	Tanner Creek		
<u>Via Big Horn County</u>							
1967			1	4		5	500
1990			1.5	8		11.5	1,150
1996			1.5	8		9.5	950
1998			1.5	8	10	17.5	1,750
2007			0	8	10	18	1,800
2013			0	8	10	18	1,800
2014			0	0	10	10	1,000
<u>Via Sheridan County</u>							
1967	2	2	1			3	300
1990	8	8	1.5			9.5	950
1996		10	1.5			11.5	1,150
2006		10	1.5			11.5	1,150
2007		10	0			10	1,000
2014		0	0			0	0

Source: Mountain West Research-North, Inc., 1982.

Note: Assumes coal from the Consol Mine is shipped south of Wyoming.

create an inconvenience to motorists, and could create serious problems when emergency vehicles are stopped and delayed while responding to a call. The city of Sheridan has recently completed a study of such grade crossings, a reflection that current delays have reached the level of public concern.

The increased number of trains would increase the number of opportunities for train-vehicle accidents on "at grade" crossings. The grade crossing of the Decker spur at Highway 314 would be particularly hazardous and would also create a delay time of about two minutes per train passage. Hardin and Sheridan would experience a significant increase in coal train traffic and could expect considerable vehicle delays at grade-level crossings because of higher vehicle volumes in those cities.

Communities' downline from Big Horn and Sheridan counties would also experience increased delays on "at grade" crossings. The amount of overall delay in any community depends on the vehicle traffic volume at the grade level crossings and on the availability of optional nearby grade separations. Delay time, and the resulting impact, is increased in downline communities where coal trains, stopped for crew changes, maintenance, or switching operation, block grade-level crossings.

A further impact would be the loss of agricultural land to railroad right-of-way. Assuming an average eighty-foot right-of-way, the Youngs Creek Mine would require conversion of approximately 175 acres with its proposed eighteen-mile spur line. The Consol Level 2 Mine proposes 52 acres in rail spur and loop (a large portion of the acreage would be within the permitted area). The KME Mine would require conversion of approximately 20 acres for its spur line. The total conversion to railroad right-of-way would be approximately 250 acres. Most of that land is currently used for grazing.

#### 4.3.7.2 Road

The forecasts of traffic and other road transportation effects for the nonreservation portion of the road network is to be carried out by the Montana Department of Highways. The new road on the Crow Reservation between Lodge Grass and Youngs Creek-Decker is not assumed constructed under the baseline forecast. Thus, traffic growth on FAS 314 between Busby and Decker would be the principal phenomenon treated in the baseline case. This growth is assumed proportionate to direct employment in the Spring Creek and Deckers mines. Baseline ADT forecast thus become:

	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>	<u>2010</u>	<u>2015</u>
FAS 314 ADT	140	145	170	165	150	140	140

#### 4.3.8 Outdoor Recreation

This section describes baseline forecast conditions (see Table 4.3.8-1) as well as the with-project forecasts (see Table 4.3.8-2) and a discussion of sensitive areas or issues apparent under current and baseline conditions.

The baseline and with-project forecasts are combined in this section for easy and convenient comparison of effects and to avoid extensive repetition in the later chapters. The reader will be referred back to these forecast tables in subsequent chapters where with-project effects are discussed.

Table 4.3.8-1 presents the baseline forecasts for regional outdoor recreation in Big Horn and Sheridan counties in terms of anticipated demand (recreation days) for selected activities for the years 1990, 2000, and 2010. These particular years were chosen because they correspond to the build-up and peak employment years for all mine project scenarios as well as allowing convenient ten-year comparisons for impact forecasting (see Appendix F for recreation demand factors and forecasts for all years 1983-2015.)

TABLE 4.3.8-1

Baseline Forecast of Demand in Recreation Days by Activity  
1990-2010  
(thousands of recreation days)

Activity	Wyoming		Percent Change		Montana		Percent Change	
	1990	2010	1990- 2000	2000- 2010	1990	2010	1990- 2000	2000- 2010
Hunting	349.0	361.3	04	07	478.2	526.8	10	11
Fishing	1325.9	1428.4	08	11	1118.3	1232.0	10	11
Camping	1593.9	1713.3	07	11	782.5	862.0	10	11
Picnicking	1353.8	1411.7	04	08	631.7	695.9	10	11
River Floating	90.1	99.0	10	13	135.8	149.7	10	11
Power Boating	324.5	290.4	-12	-08	264.9	291.8	10	11
Snowmobiling	371.9	417.8	12	16	100.5	110.7	10	11
X-C Skiing	172.2	198.6	15	19	119.0	131.1	10	11
Downhill Skiing	261.9	291.9	11	15	77.4	85.3	10	11
Horseback Riding	575.1	558.8	-03	00	255.4	281.4	10	11
Hiking	605.1	663.7	10	13	313.0	344.8	10	11
Four-wheeling	NF	NF	NF	NF	258.7	285.0	10	11

Source: Mountain West Research-North, Inc., 1982.

Note: A recreation day is one or more people participating in a particular activity for a combined total of twelve hours.

NF = not forecast.

TABLE 4.3.8-2

With-project Forecasts of Demand in Recreation Days by Activity  
1990-2010  
(thousands of recreation days)

Activity	KME						Consol Level 1		
	Wyoming		Montana		Wyoming		2010	1990	Montana 2000 2010
	1990	2000	2010	1990	2000	2010			
Hunting	363.0	374.7	385.7	480.2	529.0	585.3	381.4	379.9	385.7
Fishing	1378.9	1481.5	1587.1	1123.0	1237.0	1368.8	1448.8	1501.9	1587.0
Camping	1657.6	1777.0	1899.3	785.8	865.6	957.8	1741.7	1801.4	1899.2
Picnicking	1407.9	1464.2	1518.1	634.4	698.8	773.2	1479.4	1484.3	1518.0
River Floating	93.7	102.7	112.2	136.4	150.3	166.3	98.5	104.1	112.2
Power Boating	337.5	301.2	268.1	266.0	293.0	324.2	354.6	305.4	268.1
Snowmobiling	386.7	433.3	484.1	101.0	111.2	123.0	406.4	439.3	484.1
X-C Skiing	179.1	206.0	236.2	119.5	131.6	145.7	188.2	208.8	236.2
Downhill Skiing	272.4	302.8	335.6	77.8	85.7	94.8	286.2	306.9	335.5
Horseback Riding	598.1	579.6	560.1	256.5	282.5	312.6	628.4	587.6	560.0
Hiking	629.3	688.4	750.8	314.3	346.2	383.1	661.3	697.9	750.8
Four-wheeling	NF	NF	NF	259.7	286.1	316.6	NF	NF	NF
								261.2	285.7
									316.6



TABLE 4.3.8-2 (cont.)

With-project Forecasts of Demand in Recreation Days by Activity  
1990-2010  
(thousands of recreation days)

Activity	Consol Level 2				Youngs Creek			
	Wyoming		Montana		Wyoming		Montana	
	1990	2000	2010	1990	2000	2010	1990	2010
Hunting	381.4	411.9	437.2	482.8	534.3	592.8	361.4	374.2
Fishing	1448.8	1628.4	1799.0	1129.1	1249.5	1386.3	1372.9	1479.7
Camping	1741.7	1953.2	2152.9	790.0	874.3	970.0	1650.5	1774.7
Picnicking	1479.4	1609.4	1720.8	637.8	705.8	783.1	1401.9	1462.3
River Floating	98.5	112.9	127.2	137.2	151.8	168.4	93.3	102.6
Power Boating	354.5	331.1	303.9	267.5	296.0	328.4	336.0	300.9
Snowmobiling	406.4	476.3	548.7	101.5	112.3	124.6	385.1	432.8
X-C Skiing	188.2	226.4	267.7	120.2	133.0	147.5	178.3	205.7
Downhill Skiing	286.2	332.8	380.3	78.2	86.5	96.0	271.2	302.4
Horseback Riding	628.4	637.1	634.8	257.9	285.3	316.6	595.5	578.9
Hiking	661.3	756.7	851.0	316.0	349.7	388.0	626.6	687.5
Four-Wheeling	NF	NF	NF	261.2	289.0	320.6	NF	NF
							265.4	285.5
							111.0	123.3
							131.4	145.9
							77.6	85.5
							255.8	281.9
							313.6	345.5
							265.4	317.1

TABLE 4.3.8-2 (cont.)

With-project Forecasts of Demand in Recreation Days by Activity  
1990-2010  
(thousands of recreation days)

Activity	Wyoming			Cumulative			Montana	
	1990	2000	2010	1990	2010	1990	2000	2010
Hunting	406.9	453.3	469.2	485.7	538.7	595.7		
Fishing	1545.6	1792.3	1930.8	1135.8	1259.9	1393.2		
Camping	1858.1	2149.8	2310.5	794.7	881.6	974.8		
Picnicking	1578.2	1771.3	1846.8	641.6	711.7	787.0		
River Floating	105.0	124.2	136.5	138.0	153.1	169.2		
Power Boating	378.3	364.4	326.1	269.0	298.4	330.0		
Snowmobiling	433.5	524.2	588.7	102.1	291.4	125.2		
X-C Skiing	200.7	249.2	287.4	120.9	113.3	148.3		
Downhill Skiing	305.4	366.3	408.2	78.6	134.1	96.5		
Horseback Riding	670.4	701.2	681.3	259.4	87.2	318.2		
Hiking	705.4	832.8	913.4	317.9	287.7	389.9		
Four-Wheeling	NF	NF	NF	262.7	352.6	322.2		

Source: Mountain West Research-North, Inc. 1982.

Note: A recreation day is one or more people participating in a particular activity for a combined total of twelve hours.

NF = not forecast.

The forecasts were derived from participation rate estimates for Wyoming and Montana and from population projections generated by the economic/demographic model. For Wyoming, detailed participation rate data were available; hence, some fluctuation is evident across activities. As shown in Table 4.3.8-1, the percent change in forecast from 1990-2000 demand is within the range of 4 to 15 percent for all activities except power boating (-12 percent) and horseback riding (-3 percent). During the decade from 2000-2010, slightly larger increases in demand (7 to 19 percent) are anticipated for all activities (except power-boating and horseback riding) which show changes of -8 and 0 percent, respectively. Between 2010 and 2015, Sheridan County's baseline population is forecast to decline from 31,633 peoples to 31,507 people. However, because recreation days per person will only increase slightly over the period, total recreation days in 2015 will be very close to total recreation days in 2010. Over the twenty-year period, cross country skiing, snowmobiling, and downhill skiing should experience the greatest gain in popularity in Wyoming.

Power boating is affected by an anticipated decline in the average number of participation days per person, while horseback riding is affected by declines in both average number of participation days per person and the percentage of the population participating in the activity.

Unfortunately, limited data on participation rates for Montana required that the 1979 rates be held constant throughout the forecast period. Thus, the baseline and impact projections for Montana show a gradual increase in recreation days that parallels the population increases for all years of the forecast period (1983-2015). Overall, each activity is expected to increase by 10 percent between 1990 and 2000 and by another 11 percent between 2000 and 2010, for a 22 percent increase over the 1990-2010 period. The recreation days for each activity then increase by 7 percent between 2010 and 2015.

At this point, it is important to note that while available data for Wyoming and Montana are presented by activity and while popularity trends for activities in Wyoming can be projected, it is impossible to allocate any of the recreation days for a given activity to a specific recreation site. Therefore, demand for outdoor recreation and estimates of use must be considered together for the two-county region. Based on Table 4.3.8-1, it appears that the aggregate capacity of regional outdoor recreation areas (including USFS, NPS, state, and other public lands) is adequate for all types of activities. Supply and demand data for the Bighorn National Forest are shown in Appendix F as an example of one area's recreational capacity. Although a direct comparison of the agencies' projected capacities and the participation data of this report cannot be made, it can be concluded that significant adverse impacts to outdoor recreational areas in the region will not be experienced, given their capacity levels and the stated management objectives. Even so, there are a number of special considerations, of sensitive areas/issues that affect interpretation of these data.

First, the data indicate that regional outdoor recreation areas collectively have sufficient capacity to accommodate substantial increases in population. However, unequal distribution of recreationists (over the days of the week, months of the year, sites and activities) will undoubtedly cause overcrowding in particular areas/facilities. The camping and picnic areas in Bighorn National Forest are already at capacity on weekends, and the trails of the Cloud Peak Primitive Area are the most heavily used in the forest. Additionally, at the Bighorn Canyon National Recreation Area, where an estimated 77 percent of all visitors originate from Wyoming and Montana, peak demand occurs at camping and boating sites during five to six weekends a year (National Park Service 1981). Similar unequallness of demand is likely to prevail throughout the baseline forecast period. Coupled with the fact that, regardless of total resource availability, people tend to recreate close to home, seek out areas with environmental diversity, and show a greater interest in dispersed recreation, conditions at particular sites during periods of peak demand can be expected to worsen over the forecast period.

With any of the proposed Decker area mines, a majority of workers are expected to reside in and around Sheridan, and it is reasonable to assume that the Bighorn National Forest and state-managed recreation areas close to Sheridan will be most affected by the recreational activities of this new population.

A 1982 survey of mine workers in the Decker and Sheridan areas established that hunting, fishing, and camping are the most frequently pursued activities of mine employees (Mountain West Research-North, Inc. 1982). It is expected that mine workers on the Decker area mines, most of whom will reside in the Sheridan area, will have preferences similar to those of the surveyed mine workers, will purchase in-state (as opposed to Montana) hunting and fishing licenses, and will use nearby recreation areas. Although the effects cannot be quantified from current data, there would clearly be increased pressure on local environmental and wildlife resources under all with-project scenarios.

Population increases in Sheridan County are already perceived as contributing to conflicts among various recreation user groups and between recreationists and private landowners. For example, the "trespass fee" charged by an increasing number of private landowners is a compensating measure for trampling, disturbance of property, and littering brought on by a simple increase in the numbers of sportsmen desiring access to good hunting and fishing areas. Furthermore, long-time resident hunters and fishermen generally perceive a decline in the numbers of prime big game and fish. Some animosity also exists between outfitters and hikers because of occasional destruction/theft at basecamps and rutted, messy trails from horse traffic. These areas of tension are likely to continue under baseline and with-project conditions.

Finally, perceived crowding (real or imagined) affects the enjoyment or satisfaction an individual derives from a recreational experience. In the case of a backpacker seeking solitude and isolation in the Cloud Peak Primitive Area, contact with one or two other people may reduce the quality of his/her wilderness experience. Tolerance for greater or lesser contacts with others varies among individual recreationists and groups depending on factors such as recreational objectives and sociability. Consequently, in addition to the current problems of heavily used trails in the Cloud Peak Primitive Area, there is the issue of whether or not this finite wilderness/forest resource can continue to provide substantial opportunities for isolation given population pressures resulting from the growing number of youthful, active people and a growing interest in dispersed, off-trail recreation. This will be an important issue under both baseline and impact conditions.

In summary, projections of demand in terms of recreation days show that regional outdoor recreation areas, in aggregate, have sufficient capacity to accommodate projected baseline populations. However, the distribution of recreationists among the available regional sites to prevent over-crowding at some sites presents a critical problem for resource managers under both baseline and with-project conditions.

Generally, government agencies employ management strategies and techniques designed to maintain the integrity of the natural environment and the viability of wildlife populations and habitat while maximizing recreation opportunities and various consumptive uses (such as timber and hunting). It is expected that managing agencies will need to pay increasing attention to the issues outlined in this section. Agencies may institute more restrictive regulatory measures in an effort to balance the supplies and demands for various recreational resources. In any case, with time, more people using finite public resources will put pressure on the resources and/or on the agencies' ability to manage the resources in accordance with stated objectives.

#### 4.3.9 Land Use

In this section, future land use changes for the two-county study area under baseline conditions are discussed. Included in the tables presented in this section are with-project impacts for each of the proposed mining projects as well as the cumulative scenario. Although the with-project forecasts are presented here to facilitate comparison to baseline, the discussion of these projections is included in chapters 7 to 10 along with an analysis of the primary land use impacts resulting from on-site development of each mining operation.

#### 4.3.9.1 Constraints

The primary constraint limiting the forecasting of land use impacts is the lack of complete, readily available inventory data for either Big Horn or Sheridan county. The categories of land use for which information is particularly desirable are: (1) urban/rural residential, (2) commercial, (3) industrial, and (4) public/quasi-public. Ideally, the information about each land use category would include the current number of acres in a specific use as well as the number of acres vacant but designated or zoned to their use. Forecasted acreage needs under baseline and with-project conditions would then be compared to the "existing" and "vacant" figures. Where future land needs could be met by vacant acreages for a designated category of use, no impacts would be expected to occur. Impacts would occur when there was insufficient vacant acreage and where available conversion of lands from another use would be impossible or incompatible with wise planning objectives. Unfortunately, current land use information is sketchy or unavailable for the predominantly rural and agricultural Big Horn and Sheridan counties.

Table 3.2.9.2-1 provides 1980 land use information for Big Horn County as constructed from U.S. Census and Montana Department of Revenue data. Table 3.2.9.2-5 shows 1980 land use acreages for Sheridan County as they appear in the 1981 update of the Sheridan County comprehensive plan. Both sets of information present particular problems for impact forecasting. The Big Horn County data are extremely limited. Conversely, the Sheridan County data are more detailed, but virtually inapplicable due to definitional problems. For example, the 1980 acreage figure for the urban residential category is 37,339. This figure misrepresents existing land use because it includes many acres of agricultural land "where the possibility for urban development is very high" (CSSA/Wyoming 1981). Similarly, the 1980 county total for industrial uses is uncharacteristically high because it includes not only the more stable urban industries and operational mining activities but numerous abandoned mining sites as well.

Due to the previously described constraints, land use forecasts in this report are necessarily restricted to a simple determination of acreage needs based on economic/demographic data. Urban, rural residential, and commercial land uses are the categories for which future acreage needs are projected. Industrial acreage needs have been excluded because of the tremendous and indeterminable range of standards (acres per employees) that could be applied depending on the type of industries considered.

Where possible, urban residential impacts are assessed by comparison to housing data (see sections 3.3.2.3 and 3.6.2.3) and to the goals and objectives of city and county planning organizations that were described in the Section 3.2.9 (existing environment). Rural residential and commercial acreage needs are included and described as an important guide to planners and as an indication of the magnitude of change to expect in these areas.

#### 4.3.9.2 Big Horn County -- Baseline Land Use Forecasts

The 1974 Big Horn County comprehensive plan directs future residential developments to existing urban centers while discouraging low-density development in rural areas. In addition, it strongly discourages the development of the county's best agricultural lands. Thus, future land use change associated with population and employment growth can be expected to occur in and around existing townsites.

Big Horn County enforces subdivision and sanitation regulations and can regulate the design and quality of subdivisions and mobile home parks. However, legal exemptions in the state subdivision law allow piecemeal land divisions without local review and prevent the county from effectively regulating land divisions. Big Horn County's lack of zoning or land use permit regulations will handicap the county in achieving its land use goals and objectives.

### Urban residential

As the county seat, urban development is concentrated in and around Hardin. Land within the Hardin city limits is almost entirely developed. U.S. Census data for 1980 report 1,360 houses in Hardin for a gross estimate of 272 acres in current residential use (using 0.2 acres per unit standard). Recently, Hardin annexed a subdivision with 137 single-family, multifamily, and mobile home lots totaling approximately 27 acres. Another 26-acre subdivision under consideration for annexation brings the total number of designated residential acres to 325.

Hardin has adopted land use goals and policies to promote high quality, orderly development within its urban area. By enforcing its zoning and subdivision regulations and implementing its capital improvements plan and an annexation plan, the city can assure that its community land use objectives are met in the face of new growth.

The total acreage demand for urban residential land in Hardin under baseline conditions is shown in Table 4.3.9.2-1. It appears that acreage needs can be met by existing subdivisions through the year 1996. Thereafter, it would be necessary to convert 72 additional acres to residential use to accommodate projected demands through the year 2015. Appropriate land appears to be available west and south of Hardin, and Hardin officials are willing to incorporate outlying areas. However, Hardin's eastern and southern expansion is restricted by the Crow Reservation boundary, which influences future planning decisions for orderly and controlled growth.

### Rural residential

Big Horn County's rural lands are broken up by ownership boundaries, the most significant of which is the Crow Indian Reservation constituting approximately 43 percent of the county's total land area. As previously noted, parcels in different ownership may disrupt natural development patterns. In this county, however, the majority of the remaining land base is in private lands and, as such, is potentially developable.

The rural residential acreage needs for the entire county are presented in Table 4.3.9.2-1, based on a standard of 0.8 acres per dwelling unit (see methodology Section 2.3.8). The total acreage needs in 2015 (1,410) represent a 42 percent increase over those in 1983 (994). This demand is expected to occur close to existing towns and in accordance with county planning goals, although there is no indication of its exact location. Some of the demand could be accommodated by existing platted but undeveloped subdivisions. The Spring Creek development project with approximately 288 acres for residences, roads, and public facilities is an example of a rural subdivision immediately available to ease future anticipated housing demands in the Decker area.

### Commercial

Big Horn County's total commercial land use needs for 1983 are projected at 38 acres (see Table 4.3.9.2-1), based on a standard of 0.02 acres per employee. By the year 2015, 67 commercial land acres would be required, constituting a 76 percent increase over the 1983 needs. As with rural residential land uses, the commercial acres would be developed in urban areas, although the development cannot be assigned to particular urban centers. Commercial development is directly related to and somewhat dependent on basic residential and industrial development.

TABLE 4.3.9.2-1

Big Horn County Future Acreage Needs  
(not including the Reservation)

Big Horn County	1983	1985	1990	1995	2000	2005	2010	2015	Comments
<b>Urban Residential<sup>a</sup></b>									
Baseline Forecast <sup>b</sup>	275	279	299	321	344	357	376	397	(1996) 325
With-project Impacts									
KME	0	0	3	3	3 <sup>c</sup>	3	0	0	
Consol Level 1	0	0	6	6 <sup>c</sup>	2	0	0	0	
Consol Level 2	0	0	6	6	10	10	10	5	(1999) 11 <sup>c</sup>
Youngs Creek	0	0	1	1	1	1	1	0	(1989) 3 <sup>c</sup>
Cumulative	0	0	5	5	10	10	10	5	(1997) 11 <sup>c</sup> (1999) 11 <sup>c</sup>
<b>Rural Residential</b>									
Baseline Forecast <sup>b</sup>	994	1,006	1,070	1,121	1,164	1,206	1,287	1,410	
With-project Impacts									
KME	0	0	8	10	10 <sup>c</sup>	-11	-18	-76	
Consol Level 1	0	0	22	25 <sup>c</sup>	15	22	-10	-68	
Consol Level 2	0	0	22	25	40	38	22	-54	(1999) 42 <sup>c</sup>
Youngs Creek	0	0	5	6	6	4	-13	-75	(1989) 9 <sup>c</sup>
Cumulative	0	2	58	65	91 <sup>c</sup>	89	62	-26	
<b>Commercial<sup>d</sup></b>									
Baseline Forecast <sup>b</sup>	38	39	43	47	52	56	59	67	
With-project Impacts									
KME	0	0	0	1	0	0	3	0	
Consol Level 1	0	0	1	0	0	0	3	0	
Consol Level 2	0	0	1	0	1	1	3	1	
Youngs Creek	0	0	1	3	2	2	5	0	
Cumulative	0	0	4	4	6	7	9	2	

Source: Mountain West Research-North, Inc., 1983.

<sup>a</sup>City of Hardin -- non-Indians and Crow Indians.

<sup>b</sup>Total demand -- current plus future impacts.

<sup>c</sup>Peak year forecasts or impacts.

<sup>d</sup>Acreage needs calculated in five-year increments resulting in approximate peak year/peak demands.

Note: The apparent anomaly observed in the negative acreage figures is explained by the fact that though the scenario and baseline populations in rural Big Horn County are approximately equal, in 2005, 2010 and 2015 their age compositions differ. As noted in Section 2.3.3.2, which describes the housing model, the differences in age composition can result in 2005, 2010 and 2015 scenario populations having demand for fewer housing units and subsequently less residential land than the baseline populations.

### Topical area of interest

Land ownership on the Crow Reservation is divided among a number of parties (see Section 3.2.9). However, the tribe is attempting to buy back available privately owned non-Indian land within the reservation boundaries to be held in tribal trust. The tribe has independent authority to regulate and restrict the use of its own lands.

Table 4.3.9.2-2 presents the housing demand forecast and baseline residential acreage needs among the Crow Indians for the study period. Because baseline population and subsequent housing demand is expected to increase naturally and be accommodated by available Crow lands, no impacts are expected for any of the specific or cumulative proposed mining scenarios.

#### 4.3.9.3 Sheridan County -- Baseline Land Use Forecasts

Through enforcement of its subdivision, mobile home, and sewage disposal regulations, Sheridan County can carry out, to some degree, its policies that encourage high quality development. However, in the absence of zoning or other land use regulations, the county will be unable to fully implement its policies of protecting the Bighorn Mountains' east front, discouraging development on agricultural lands, and protecting environmental and historic features. Such a county-wide zoning and regulatory plan is currently under consideration.

The necessity for sound county zoning regulations is emphasized by the particularly high percentage of privately owned land in the county. Private lands, as opposed to federal, state, or other public lands, are developable and have the potential for conversion to so-called "higher and better" land uses unless it is zoned and regulated by county government.

The baseline and with-project forecasts for Sheridan County urban residential and commercial lands are based on the same standards used in Big Horn County -- 0.2 acres per dwelling and 0.02 acres per employee, respectively. The rural residential standard is 1.5 acres per dwelling unit which is nearly twice as large as that used for Big Horn County.

It is important to note a significant mitigating factor that affects the assessment of urban residential impacts for baseline and with-project scenarios in the greater Sheridan area. Certain existing subdivision acreages have been identified for future development and for the purposes of this study help define the capacity for future needs. However, the updated Sheridan comprehensive plan makes it clear that considerably greater peripheral development to the south and west of Sheridan can be accommodated and is anticipated.

The plan includes a proposed transportation scheme that would open up many acres to the south of the city to new, controlled development. It is presumed that some of the areas to the south of Sheridan are included in the 37,339-acre urban residential land use classification found in the comprehensive plan. Based on these and other expressed preparations for anticipated growth, it is apparent that land availability for future urban residential development in the greater Sheridan area would not be a problem.

### Urban residential

The city of Sheridan has no formally adopted land use plan or policies, other than those expressed as part of the city zoning ordinance. With its zoning regulations, capital improvements program, and transportation plan, Sheridan is in a position to promote orderly growth within its corporate boundaries and subsequent annexations.



TABLE 4.3.9.2-2

Total Crow Reservation Housing Demand and Residential Acreage Needs

Year	Housing Demand (Units)	Residential Acres (Standard 0.8 acres/dwelling)
1983	1,222	978
1985	1,293	1,034
1990	1,478	1,182
1995	1,643	1,314
2000	1,831	1,465
2005	1,936	1,549
2010	2,060	1,648
2015	2,247	1,798

Source: Mountain West Research-North, Inc., 1982.

In 1980, the U.S. Census reported 6,425 housing units within the city limits. Although exact inventory data are lacking, this residential area is assumed to be approximately 1,285 acres using an 0.2-acre-per-dwelling unit standard. In addition, the housing analysis (see Section 3.6.2.3) identifies 560 available lots in ten subdivisions within the city. This vacant area constitutes approximately 112 acres for future use. The greater Sheridan area, where density is low and the minimum lot size large, is estimated to have another 1,290 acres of residential land, assuming 860 available lots with an average of 1.5 acres per lot. In total, there are at least 2,687 acres of existing and vacant land designated for urban residential use in the greater Sheridan area (including the city).

Table 4.3.9.3-1 shows the projected acreage needs for urban residential land over the forecast period. These figures, based on housing demand data for the specific area, suggest that a total of 1,764 residential acres are needed in 1983 and that acreage demand will increase by 34 percent through the year 2015 when a total of 2,432 acres will be required. As previously described, approximately 2,687 acres of urban residential land are already available. Consequently, no impacts are anticipated under baseline conditions.

#### Rural residential

This category of land use includes all smaller incorporated and unincorporated towns in the county, but excludes the greater Sheridan area. Given that future residential development is most likely to occur in the vicinity of existing townsites, the standard used for this category (1.5 acres per dwelling) is an average of the two-acre lot required for dwellings needing both a well and septic tank and the one-acre minimum for those needing either a well or a septic tank.

Total rural residential acreage requirements for all county areas outside the greater Sheridan area are presented in Table 4.3.9.3-1. These figures show a moderate 28 percent (957-acre) increase in rural acreage needs from 1983 to 2015. The housing analysis found that there are at least eight subdivisions with 310 available lots currently awaiting development in the rest of county. These lots, approximately 465 acres, are available to help absorb the increasing demand for rural residential acreages. Plentiful private lands would be expected to easily handle additional needs.

#### Commercial

Although existing commercial acreages for Sheridan County are unknown, employment data and a 0.02-acre-per-employee standard were used to calculate land needs from 1983 to 2015. One hundred and twenty acres were forecast for commercial use in 1983 (see Table 4.3.9.3-1). By 2015, an additional 73 acres representing a 61 percent increase will be necessary. As in Big Horn County, commercial acres would be concentrated on urban areas -- a large portion of which can be expected in the greater Sheridan area.

### 4.4 Big Horn County and Communities

#### 4.4.1 Introduction

This section presents the baseline forecasts for Big Horn County (including the reservation) and for the nonreservation subcounty areas in Big Horn County. Section 4.4.2 presents the baseline forecast for the county. Section 4.4.3 presents the baseline forecasts for Hardin and the Hardin area. Section 4.4.4 presents the forecasts for the Decker/Spring Creek area. Subsequent sections (4.5 and 4.6) discuss the baseline forecasts for the Crow and Northern Cheyenne Indian Reservations.

TABLE 4.3.9.3-1

## Sheridan County Future Acreage Needs

Sheridan County	1983	1985	1990	1995	2000	2005	2010	2015	Comments
<b>Urban Residential<sup>a</sup></b>									
Baseline Forecast <sup>b</sup>	1,764	1,834	2,022	2,163	2,295	2,279	2,442 <sup>c</sup>	2,432	
With-project Impacts									
KME	0	29	85	90	95 <sup>c</sup>	62	0	0	
Consol Level 1	0	2	196	209 <sup>c</sup>	154	-13	-9	-3	(1998) 213 <sup>c</sup>
Consol Level 2	0	2	196	209	336	337	341 <sup>c</sup>	161	
Youngs Creek	0	0	73	84	89 <sup>c</sup>	88	89 <sup>c</sup>	0	
Cumulative	0	31	346	376	608	601	550	300	
<b>Rural Residential</b>									
Baseline Forecast <sup>b</sup>	3,473	3,563	3,789	3,966	4,134	4,149	4,244 <sup>c</sup>	4,430	
With-project Impacts									
KME	0	18	66	72	77 <sup>c</sup>	48	0	0	
Consol Level 1	0	0	140	152	111	-11	-8	-3	(1998) 156 <sup>c</sup>
Consol Level 2	0	5	141	152	248	249	254 <sup>c</sup>	122	
Youngs Creek	0	0	53	62	66 <sup>c</sup>	63	63	0	
Cumulative	0	21	273	302	479 <sup>c</sup>	474	444	231	
<b>Commercial<sup>d</sup></b>									
Baseline Forecast <sup>b</sup>	120	127	130	148	159	167	184	193	
With-project Impacts									
KME	0	1	12	4	4	2	1	0	
Consol Level 1	0	0	16	8	1	11	1	1	
Consol Level 2	0	0	16	8	14	18	15	8	
Youngs Creek	0	0	12	5	5	7	5	0	
Cumulative	0	0	23	16	27	22	26	2	

Source: Mountain West Research-North, Inc., 1983.

<sup>a</sup>City of Sheridan and greater Sheridan area.<sup>b</sup>Total demand -- current plus future impacts.<sup>c</sup>Peak year forecasts or impacts.<sup>d</sup>Acreage needs calculated in five-year increments resulting in approximate peak year/peak demands.

<sup>e</sup>Note: The apparent anomaly observed in the negative acreage figures is due to with-project population and housing unit forecasts that are below base year forecasts. For a more detailed discussion see Section 6.3.2.

#### 4.4.2 Big Horn County

##### 4.4.2.1 Population and Economy

As shown in Table 4.4.2.1-1, Big Horn County's baseline population is forecast to increase from the 1980 population of 12,180 persons to 13,585 persons in 1990, an increase of 12 percent. Between 1980 and 1990, all of the population growth is forecast to be a result of natural increase, as employment and non-employment-related migration contribute to a population decline over the period.

The rate of population growth after 1990 is forecast to decrease, with the result that the population increase over this period -- from 13,585 people in 1990 to 14,966 people in 2000 -- is only 10 percent. Over this period, the natural increase in population remains steady, but employment-related migration is sporadic, contributing to population growth heavily in some years and none at all in other years. The population is forecast to increase by 11 percent between 2000 and 2010, and to reach 16,628 persons in 2010 and 17,843 persons in 2015.

During the 1980s, total employment is forecast to grow from 4,484 persons in 1980 to 4,893 persons in 1990, an increase of 9 percent (see Table 4.4.2.1-2). During the early 1980s, declines in mining employment at the Decker, Spring Creek, and Absaloka mines caused total employment to decline slightly. However, as mining employment increases again in the mid-1980s, total employment grows more rapidly. Total employment is forecast to grow by another 14 percent in the 1990s and by yet another 14 percent between 2000 and 2010. Employment is then forecast to increase by 7 percent between 2010 and 2015. Over the thirty-five-year forecast period, all sectors but agricultural proprietors increase steadily. The agricultural proprietor decrease is limited to eighteen persons, or less than one person per year. The decline in mining is due primarily to the closure of the Decker Mine after 2000.

As shown in Table 4.4.2.1-3, which separates the employment forecast into its basic and nonbasic components, basic employment is forecast to remain relatively constant between 1980 and 1986 at about 2,250 to 2,300 persons. After 1986, basic employment is forecast to rise steadily to 2,941 persons in 2015, which represents a 71 percent increase over the thirty-five-year period and implies a 1.6 average annual growth rate.

Nonbasic employment is forecast to grow more slowly, increasing from 2,204 persons in 1980 to 2,941 persons in 2015, a 33 percent increase for an average annual growth rate of 0.9 percent. The increase in nonbasic sector employment is spread throughout all sectors except agriculture and mining.

When combined, the basic and nonbasic employment growth rates would cause the ratio of nonbasic to basic jobs to decrease from 97 to 100 in 1980 to 75 to 100 by 2015. This change can be attributed to the fact that in 1980 nonbasic activity is more dependent on expenditures from highly paid mining and construction workers while in 2015 it is forecast to be more dependent on less well paid basic trade and service workers' expenditures.

As Table 4.4.2.1-4 shows, total personal income (in constant terms) declines between 1980 and 1984 but then is forecast to increase from \$77.0 million in 1984 to about \$120.3 million in 2015. Real personal per capita income is forecast to increase from \$6,464 in 1980 to \$6,774 by 2015, an increase of 4.8 percent.

Big Horn County's population is concentrated in the Hardin area, Crow Agency, and Lodge Grass, with the remaining population residing in rural areas throughout the county. Following sections present the baseline forecasts for each of these areas individually.

Table 4.4.C.1 -  
Baseline Scenario Forecast  
Population Change  
Big Horn County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment- Related Migration	Total Change
1980	12180	0	0	0	0	0
1981	12325	293	120	2	-23	193
1982	12411	291	124	-44	-27	96
1983	12538	298	124	-35	-24	114
1984	12655	287	125	-19	-13	128
1985	12797	288	123	2	-23	142
1986	12931	282	124	2	-25	134
1987	13064	283	126	2	-26	133
1988	13187	279	132	2	-26	123
1989	13308	279	134	2	-25	121
1990	13585	270	135	168	-25	278
1991	13898	270	138	2	-22	111
1992	13915	271	138	107	-21	216
1993	14009	274	138	3	-24	214
1994	14168	270	142	13	-23	137
1995	14308	274	144	33	-24	141
2000	14868	289	158	14	-28	117
2010	15873	293	168	58	-21	257
2015	16838	307	175	69	-25	171
2017	17243	338	189	68	-25	192

Source: Mountain West Research - North, Inc., December, 1981

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

Table 4.4.2.1 - 2  
Baseline Scenario Forecast  
Total Employment by Sector  
Big Horn County

As Planned	As Labor	Con struction	Manu facturing	Trade	Fire	Services	Gov ernment	Other +com.	Total			
801	508	421	239	225	49	125	885	131	1049	998	75	4484
811	508	421	225	245	48	125	882	130	1082	1000	75	4508
821	508	421	183	252	47	126	852	128	1059	984	75	4449
831	508	421	176	246	47	128	851	127	1083	986	75	4442
841	508	421	179	220	47	130	851	127	1088	989	75	4430
851	508	421	184	197	47	132	854	128	1082	1008	75	4438
861	507	421	188	192	48	134	859	128	1096	1020	75	4471
871	507	421	213	197	48	136	871	131	1133	1045	75	4581
881	508	421	258	199	50	138	887	134	1183	1071	75	4707
891	508	421	259	200	50	139	890	135	1189	1088	75	4757
901	505	421	301	205	51	142	907	138	1228	1118	75	4893
911	505	421	301	207	51	143	912	138	1258	1137	75	4950
921	504	421	334	211	52	145	926	141	1298	1188	75	5075
931	504	421	334	212	53	148	928	141	1324	1184	75	5123
941	503	421	334	213	53	148	934	143	1355	1204	75	5185
951	503	421	334	217	53	148	942	144	1398	1228	75	5281
961	499	421	333	223	55	150	969	147	1584	1343	75	5584
971	494	421	333	231	57	158	984	153	1770	1479	75	5879
981	487	421	324	241	58	164	948	160	1987	1831	75	6373
991	484	421	313	242	63	171	891	168	2202	1774	75	6373

Source: Mountain West Research - North, Inc., December, 1982.

Note: Details may not sum due to rounding.

Table 4.4.2.1 - 3  
Baseline Scenario Forecast  
Employment by Type  
Big Horn County

Year	Total	Basic		Indirect Basic	Basic Project O&M	Project Construction-Ferm	Project Construction-Reloc.
		Non Basic Total	Basic Non Project				
1980	4484	2204	2280	0	217	35	0
1981	4508	2211	2295	0	215	51	0
1982	4449	2171	2277	0	175	32	0
1983	4442	2163	2278	0	170	57	0
1984	4430	2158	2272	0	176	32	0
1985	4438	2174	2264	0	181	6	0
1986	4471	2171	2299	0	186	3	0
1987	4581	2218	2362	0	211	3	0
1988	4707	2264	2443	0	256	3	0
1989	4797	2275	2482	0	257	3	0
1990	4893	2330	2562	0	297	3	0
1991	4950	2346	2604	0	297	3	0
1992	5075	2395	2679	0	331	3	0
1993	5128	2406	2721	0	331	3	0
1994	5135	2420	2765	0	331	3	0
1995	5266	2454	2812	0	331	3	0
2000	5589	2530	3059	0	328	3	0
2005	5961	2622	3332	0	318	3	0
2010	6411	2771	3640	0	311	3	0
2015	6834	2941	3893	0	301	3	0

Great Mountain West Research - North, Inc., December, 1980

Note Details may not sum due to rounding.

Table 4.4.2.1 - 4  
Baseline Scenario Forecast  
Personal Income  
Big Horn County  
(Thousands of 1980 Dollars)

Year	Total Labor Income	FICA Payments	Non-labor Income	Residence Adjustment	Total Personal Income	Per Capita (1980 \$)
1980	63924	4908	20703	5	78728	6484
1981	63637	4961	20967	5	78649	NC
1982	61444	4790	20712	5	77372	NC
1983	60940	4750	20763	5	76957	NC
1984	60578	4722	20747	5	76608	NC
1985	61754	4814	20953	5	77699	NC
1986	60923	4749	20909	5	77088	NC
1987	63700	4965	21325	5	80065	NC
1988	65672	5119	21565	5	82344	NC
1989	66316	5169	21657	5	82907	NC
1990	69264	5401	22037	5	85907	6325
1991	70008	5457	22345	5	86801	NC
1992	72907	5683	22550	5	89145	NC
1993	73559	5734	22647	5	89945	NC
1994	74393	5799	22791	5	91388	NC
1995	76338	5966	23259	5	93568	NC
2000	80550	6179	24176	5	98904	7571
2005	85148	6638	25716	5	104207	NC
2010	91664	7147	28102	5	112918	8773
2015	97887	7632	30090	5	120614	9774

Source: Mountain West Research - North, Inc., December, 1981

Notes: Details may not sum due to rounding.

The personal and per capita income figures do not include Crow dividends from royalties and a possible Crow severance tax.

NC means not calculated.



## Commercial opportunities

As shown in Table 4.4.2.1-5, the number of potential opportunities for commercial establishments implied by the threshold analysis for Big Horn County is far greater than the actual number of establishments in 1982. The difference between opportunities and actual establishments can be explained by three factors. First, Big Horn County is in both the Billings and Sheridan trade areas, and many county residents do much of their shopping in these cities rather than in Hardin. Second, the per capita income in Big Horn County is slightly below that of the areas for which the threshold figures for commercial establishments were derived. Finally, many of the businesses noted in Table 4.4.2.1-5 are dependent on non-local tourists and travelers. Because of Hardin's location approximately halfway between Billings and Sheridan, many travelers probably visit service stations, restaurants, bars, and motels in those two cities rather than in Hardin. Hence, the threshold analysis probably overstates the need for these travel-related businesses and should be considered an upper limit rather than an estimate of actual commercial opportunities under both baseline and with-project scenarios.

Under the baseline scenario, opportunities for commercial establishment are forecast to increase by 24 between 1980 and 1990 and by an additional 27 between 1990 and 2000. In 2000, there would be 298 commercial opportunities, 21 percent above the 247 present in 1982.

### 4.4.2.2 Social Life and Cultural Diversity

As discussed in Section 3.3.2.2, the changes that occur during the baseline period will dominate future conditions in the area under all with-project scenarios. As seen in Table 4.1-1, there are only very small differences in total county population between any of the forecast scenarios. This means that the proposed coal development is not likely to introduce important uncertainties for county decision-makers in terms of the magnitude of potential demand for services or the composition of their political constituencies. The continuing increase in the relative size of the Crow population has important implications for both political and social relationships within the county. Attempts by the Crow to gain greater representation in county government are likely to be viewed as a threat to the status quo in the county. Significant change in the composition of the county government would constitute an important alteration of the existing stratification system and would almost certainly, in the short run at least, create additional tensions and conflict between the anglos, the Crow, and potentially, the Northern Cheyenne. Such a change could result in substantial modifications of the organizational characteristics of county government, especially in terms of the relationship between county and tribal authorities. It could also provide a basis for a significant shift in county government priorities and behavior -- the principal expressed concern of non-Crow residents of the county. It is not clear whether such a change would prompt coalescence of the anglo residents, who are currently relatively fragmented and lack a strong sense of shared interest, nor is it clear how overt the expression of anxiety over such changes would be.

These unknowns, along with those that accompany any attempt to forecast social change over a thirty-five-year period, make detailed discussion of the social organization of the county over the baseline period of little utility.

### 4.4.2.3 Housing

In this chapter, baseline housing demand is discussed in three sections. This section discusses housing demand and supply for the non-Indian population of Big Horn County and the Crow Indian population in Hardin because they are subject to the same demand and supply conditions as non-Indians. Section 4.5.2.4 discusses demand/supply forecasts for Crow Indians on the Crow Reservation, and Section 4.6.3 presents forecasts for the Northern Cheyenne Indians on the Northern Cheyenne Reservation.

TABLE 4.4.2.1-5

Commercial Opportunities  
Baseline Scenario  
Big Horn County  
1982, 1990, 2000

Type of Commercial Opportunity	Existing	Commercial		
	Establishments 1982	1982	1990	2000
<u>Retail</u>				
Gasoline Service Station	10	20	22	25
Eating and Drinking Place	14	28	31	34
Grocery and Other Food Store	9	10	10	12
Motor Vehicle Dealers and Auto Supply Store	6	8	9	10
Clothing and Shoe Store	4	7	8	9
Lumber, Hardware, and Mobile Home Dealers	4	9	10	11
Furniture and Household Appliance Stores	3	6	7	8
Department Stores	0	2	2	2
Drug, Variety, General Merchandise Stores	7	11	12	14
Sporting Goods, Hobby, Flowers, Gift, Sewing Stores	4	10	11	13
Liquor Store	1	4	5	5
Jewelry Store	1	3	4	4
Book Store and Newstands	0	1	1	1
<u>Service</u>				
Hotels, Motels, Commercial Campgrounds	9	23	25	27
Beauty and Barber Shops	8	13	14	15
Auto Repair Shops	3	13	14	15
Legal, Accounting, Advertising, Data Processing	7	23	25	28
Engineering, Architecture, Surveying	0	6	6	7
Equipment and Auto Renting and Leasing	0	4	4	5
Laundries	2	4	5	5
Appliance, Furniture, and Shoe Repair	1	6	6	7
Movie Theatres and Bowling Alleys	2	3	4	4
Janitorial Services	0	5	6	6
Photographic Studios	1	3	3	3
Car Washes	0	2	2	2
Funeral Services	1	1	1	1
<u>Finance and Real Estate</u>				
Real Estate Office	3	11	12	13
Insurance Agencies	9	5	6	6
Personal Credit Institution	0	3	3	3
Commercial Bank	2	3	3	3
Savings and Loan Association	1	0	0	0
<b>TOTAL</b>	<b>112</b>	<b>247</b>	<b>271</b>	<b>298</b>

Source: Mountain West Research-North, Inc., 1982.

Note: Population for these years are: 1982: 12,421; 1990: 13,585; 2000: 14,966.

As shown in Table 4.4.2.3-1, total baseline demand for all non-Indians in Big Horn County and for Crow Tribal Members residing in Hardin is forecast to increase steadily through the 1980s and then more rapidly during the 1990s as population growth accelerates. The forecast in the year 2000 of 3,176 units is 22 percent above the 1980 inventory, implying an average annual growth rate of 1 percent. This rate of growth is expected to continue after 2000 and housing demand is forecast to reach 3,747 units by 2015.

Under the baseline scenario, local housing suppliers would keep pace with demand through the 1980s, fall behind in the mid 1990s, and then keep pace with demand through 2015. As noted earlier, it is highly probable that these potential deficits could be made up by contractors from Billings who have previously demonstrated their willingness to construct housing in Big Horn County. In addition, it is possible that Crow Indian contractors would be available to construct houses for non-Indians on the reservation or for Indians and non-Indians who live in other parts of Big Horn County.

However, if local suppliers of housing do not expand their capacity to meet local demand, and if they are not supplemented by nonlocal or Crow Indian builders and/or developers, then the forecast deficits are likely to occur. These deficits could cause housing prices to escalate and reduce both existing residents' and newcomers' choices of housing price and type. In particular, escalating housing prices have been known to adversely affect low and fixed income groups.

#### 4.4.2.4 Facilities and Services

Big Horn County government provides a full range of services to unincorporated areas of the county. Some functions, such as general government, hospital, library, and landfill, serve the residents of incorporated areas as well. See Section 3.3.2.4 for the inventory of existing conditions.

Because of the multiplicity of service providers and the unique use characteristics of the Big Horn County population; national, regional, or even state standards that are based on county population must be applied with caution for Big Horn County.

On the Crow Indian Reservation, facilities and services are provided through a system of multiple jurisdictional authorities. The Crow Indian Tribal Government, the Bureau of Indian Affairs, and the Indian Health Service have primary responsibility for the provision of regional types of facilities and services. However, other regional facilities and services are provided by other agencies of the federal government, the state of Montana, and Big Horn County. One municipal jurisdiction, the city of Lodge Grass, and five unincorporated jurisdictions (Crow Agency, Wyola, St. Xavier, Ft. Smith, and Pryor) are included within the reservation.

Big Horn County has three public high school districts and seven public elementary school districts that incorporate three public high schools and ten elementary schools.

#### General government

County general government offices are housed in the county courthouse building that contains 25,392 sq. ft. of space. The building was renovated in 1980-81. Existing space is adequate for the current population and should accommodate the 5,422-person growth projected under the baseline scenario. Using standards developed by CITF<sup>1</sup> of 800 sq. ft. of general government space per 1,000 population, the peak demand is 14,274 sq. ft. in the year 2015.

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<sup>1</sup>CITF is the Cumulative Impact Task Force working in energy impact areas in western Colorado. This group developed a set of physical standards for smaller communities. Unless local standards were obtained, CITF standards will be used throughout this report.

TABLE 4.4.2.3-1

Baseline Scenario Forecast  
Housing Unit Demand/Supply  
Big Horn County

Year	Total Demand	Incremental Demand Over Previous Year	Local Supply Response (Limit = 40)	Cumulative (Deficit) Surplus
1980	2,601	12	12	0
1981	2,613	12	12	0
1982	2,604	-9	0	9
1983	2,616	12	3	0
1984	2,630	14	14	0
1985	2,651	21	21	0
1986	2,675	24	24	0
1987	2,697	22	22	0
1988	2,725	28	28	0
1989	2,743	18	18	0
1990	2,834	91	40	(51)
1991	2,852	18	40	(19)
1992	2,915	63	40	(42)
1993	2,943	28	40	(30)
1994	2,969	26	40	(16)
1995	3,008	39	40	(15)
1996	3,037	29	40	(4)
1997	3,065	28	32	0
1998	3,107	42	40	(2)
1999	3,137	30	32	0
2000	3,176	39	39	0
2005	3,291	115 for 5 yrs	115 for 5 yrs	0
2010	3,491	200 for 5 yrs	200 for 5 yrs	0
2015	3,747	256 for 5 yrs	200 for 5 yrs	(56)

Source: Mountain West Research-North, Inc., 1982.

Note: Figures include all non-Indian in Big Horn County and Crow Indians in Hardin.

### Sheriff

The Big Horn County Sheriff's Department occupies 18,846 sq. ft. of space in a new addition to the county courthouse. This area is adequate for the existing population as well as for the projected baseline growth. Using a standard of 400 sq. ft. per 1,000 population (CITF), demand in year 2015 totals 7,137 sq. ft.

### County shop

The County Roads, Engineering, and Planning Department is located in the shop building and functions as one county department. Available space is inadequate for the existing population. Plans for a new building contain 7,000 sq. ft. of office and storage space near Hardin have been drawn. The inventory of existing conditions indicated that the new facility will be adequate for the existing population, and translates to a local standard of 563 sq. ft. of space per 1,000 population. Using this standard, an additional 3,000 sq. ft. of space will be required by the year 2015 under the baseline scenario.

### Fire

The Big Horn County Fire Department serves the unincorporated areas of the county. The department is staffed entirely by volunteers. If the spatial distribution of new residents follows the existing patterns, using the CITF standard of 1,000 sq. ft. per 1,000 population, then no additional buildings or equipment will be required to meet baseline conditions through 2015.

### Solid waste

Big Horn County is part of a tri-county system established in 1978. Collection is supplied by private contractors who will be able to expand their operations in response to increases in population.

The landfill site is owned by Hardin but is operated by the county. Operating and maintenance costs are provided by the district-wide mill levy. The site is approximately forty acres in area and is considered adequate for another twenty to twenty-five years under the baseline projections.

### Hospital

The Big Horn County Hospital is a self-supporting political subdivision organized as a nonprofit governmental agency. Operating and maintenance expenditures are covered by fees and charges, while capital equipment is purchased by the county. The hospital has 16 acute and 34 long-term care beds. The acute care beds are averaging 56 percent occupancy, which translates to a standard of 0.72 acute care beds occupied per 1,000 population. Applying this standard to the projected population, peak demand is for 13 acute care beds in 2015, still below the existing capacity. The national standard for hospital beds is three per 1,000 population. This standard projects a need for 54 beds in year 2015. This figure includes long-term care beds. It should be noted that because of the Indian Health Service Hospital in Crow Agency, which serves the Indian population of the county, capacity standards may need to be adjusted for local conditions.

The hospital is undertaking an expansion program in 1983 that will add 8,000 sq. ft. to the existing 25,000 sq. ft. structure. This expansion, coupled with a new 36-bed nursing home and twenty-unit retirement home, should be adequate for anticipated population growth.

Ambulance service for the county is provided by a privately owned company under contract with the county. New equipment and staff that may be required will not be the county's responsibility.

## Social Services

Under the baseline scenario, Big Horn County's Public Welfare Department would need to increase its staff from the current level of 10 persons to 11 persons in 1995 and 13.4 persons in 2015 (based on the 1982 ratio of .0018 staff persons per capita). Based on a space standard of .1 sq. ft. per capita, space requirements would be 617 sq. ft. in 1995 and 748 sq. ft. in 2015. However, if the 1982 space ratio of .3763 sq. ft. per capita is to be maintained, then the current 2,040 sq. ft. of space would need to be expanded to 2,323 sq. ft. in 1995 and 2,815 sq. ft. in 2015.

## Library

Existing facilities which were completely renovated in 1981 are considered adequate for the current population plus some growth. The librarian stated that expansion could be necessary only if the population increased significantly. Due to projected growth, the library may need to expand or seek other alternatives such as additional book mobile service contracted with the Montana State Library System. The circulation rate and library usage should be monitored prior to a decision to expand library facilities.

## Parks and recreation

Big Horn County oversees two parks and recreation functions, the county fair board and the county park board. The fairgrounds have recently been renovated to expand its capacity for social events. The county park board has coordinated the construction of softball fields at the fairgrounds, which were built using county funds and volunteer labor. The expected increase in recreation opportunities provided by the recent actions will adequately serve the projected population under the baseline assumptions. Parks serving residential areas should not be the responsibility of the county.

### 4.4.2.5 Fiscal

As shown in Table 4.4.2.5-1, the trends noted in the regional overview in Section 3.2.6 carry through the projection period and result in a cumulative deficit in 2005 of \$94,000. During this period, however, cumulative surpluses do occur, peaking at \$3.8 million in 2000. As the property tax base drops after 2000, revenues are not sufficient to cover the anticipated costs of providing services.

### 4.4.2.6 Schools -- Facilities/Services and Fiscal

#### Facilities/Services

In the baseline scenario, the three high schools and ten elementary schools within the public high school and elementary school districts of Big Horn County experience moderate increases in requirements for personnel for both mid-term and long-term periods of projection. Each of the high schools is expected to have adequate space for mid-term and long-term needs. Eight of the elementary schools also have adequate capital facilities for projected needs. The elementary schools in Lodge Grass would require additional capital facilities prior to 1985.

The rates of increase for the total elementary school and high school student enrollments are expected to be relatively constant throughout the study period. Student enrollment would increase over the forecast period from 2,270 to 2,780 students (22 percent), an increase of 270 (12 percent) occurs by 1995 (mid-term) while the remaining 240 (10 percent) occurs after 1995. Elementary school student enrollment would increase from 1,600 to 2,060 students (29 percent), an increase of 260 (16 percent) occurs before 1995 and an increase of 200 (13 percent) occurs after 1995. High school student enrollment increases from

	1992	1993	1994	1995	1996	1997	1998	1999	2000
FISCAL SURPLUS									
PERIOD 5 TOTAL	549.3	516.3	557.7	622.2	677.1	740.9	752.9	776.4	784.7
EXPENDITURES									
OPERATIONAL	606.5	619.0	674.4	671.9	639.5	648.1	651.2	637.7	670.8
CAPITAL	318.0	37.2	30.0	30.0	30.0	30.0	30.0	30.8	30.0
DEBT PAYMENT	97.0	35.0	39.0	35.0	35.0	35.0	35.0	35.0	35.0
TOTAL	1060.4	691.2	604.9	696.9	703.5	710.1	716.2	703.9	735.8
FISCAL BALANCE									
ANNUAL	-124.9	-124.9	-132.2	-7.47	-26.5	30.8	36.1	45.5	48.0
CUMULATIVE	-124.9	-257.1	-389.3	-396.8	-423.3	-392.5	-356.4	-310.9	-262.9
FISCAL BALANCE									
ANNUAL	-124.9	-124.9	-132.2	-7.47	-26.5	30.8	36.1	45.5	48.0
CUMULATIVE	-124.9	-257.1	-389.3	-396.8	-423.3	-392.5	-356.4	-310.9	-262.9
PERIOD 5 TOTAL	839.5	766.7	552.2	561.2	598.3	598.3	598.3	598.3	598.3
EXPENDITURES	706.5	709.0	776.9	804.5	813.0	813.0	813.0	813.0	813.0
CAPITAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
DEBT PAYMENT	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
TOTAL	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
FISCAL BALANCE	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5
ANNUAL	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5
CUMULATIVE	139.5	279.0	418.5	558.0	697.5	837.0	976.5	1116.0	1255.5
FISCAL BALANCE									
ANNUAL	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5	139.5
CUMULATIVE	139.5	279.0	418.5	558.0	697.5	837.0	976.5	1116.0	1255.5

Note: Details may not sum due to rounding.

Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter, only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.

The large net deficit shown in this table result from the methodology used (see Section 2.3.4). In actuality, such deficits would not be allowed to occur -- government officials would either find additional sources of revenues and/or reduce expenditures.

NP = not forecast.

Note: Details may not sum due to rounding.

Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter, only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.

The large net deficit shown in this table result from the methodology used (see Section 2.3.4). In actuality, such deficits would not be allowed to occur -- government officials would either find additional sources of revenues and/or reduce expenditures. NF = not forecast.

670 to 720 students (7 percent); 10 additional students (1 percent) are added by 1995 and 40 (6 percent) are added after 1995. (See Table 4.4.2.6-1.)

Elementary school students form the major component of total student enrollment with 1,860 students (73 percent) in the mid-term projections and 2,060 students (74 percent) in the long-term projections. Elementary school student enrollment are forecast to increase from 1,600 to 1,860 students (17 percent) by 1995, accounting for 90 percent of the total increase in student enrollment over this period. High school student enrollments are forecast to increase from 670 to 680 students (1 percent) by 1995 and to 720 students (7 percent) by 2015. (See Table 4.4.2.6-1.)

The forecast rates of increase for the total elementary and high school requirements for personnel (teachers) are relatively constant throughout the study period. Total demand for teachers is expected to increase from 201 to 241 (20 percent); 18 (9 percent) are needed by 1995 with an additional 22 (11 percent) needed between 1995 and 2015. Demand for elementary school teachers would increase from 137 to 175 teachers (28 percent) over the forecast period; 21 (15 percent) are needed by 1995 and 17 (13 percent) more are needed between 1995 and 2015. The number of high school teachers is forecast to increase from 64 to 66 (3 percent) in the long-term projections. In the mid-term projections, the necessary number of high school teachers is expected to decrease from 64 to 61, a decline of 5 percent. (See Table 4.4.2.6-1.)

Corresponding to the predominance of elementary school students in the system, elementary school teachers would comprise the major component of total teachers: 72 percent in the mid-term projections and 73 percent in the long-term projections. In the mid-term projections, the number of elementary school teachers would increase from 137 to 158 (87 percent), which is 100 percent of the total increase in requirements for personnel. In the long-term, the number of elementary school teachers would increase from 137 to 175 (28 percent), 95 percent of the total increase in requirements for personnel. (See Table 4.4.2.6-1.)

The expected demand for additional capital facilities at the elementary school in Lodge Grass increases relatively constantly. The total expected increase in requirements for space over the study period is 32 percent, 17 percent of which occurs by 1995. Between 1995 and 2015, forecast demand for elementary school space in Lodge Grass increases by 15 percent.

The following sections present detailed information about school enrollments and the requirements for personnel and capital facilities for each of the schools located in the public high school and elementary school districts of Big Horn County. The information is presented in terms of the existing environment (1982), mid-term (1995) projections, and long-term (2015) projections.

High School District No. 1 (Hardin). Student enrollment increases from the existing number of approximately 440 students to 450 students (2 percent) in the mid-term projections and to 480 students (9 percent) in the long-term projections (see Table 4.4.2.6-2). Although the existing number of 30 teachers is expected to be adequate for mid-term needs, long-term needs would increase to 32 teachers (7 percent). The existing amount of approximately 89,600 sq. ft. of space is expected to be adequate for mid-term and long-term needs. (See Table 4.4.2.6-3)

Elementary School District No. 17H (Hardin). Student enrollment is forecast to increase from the existing number of approximately 340 students to 970 students (15 percent) in the mid-term and 1,050 students (25 percent) in the long-term (see Table 4.4.2.6-2). The existing number of 56 teachers will need to increase to 64 teachers 14 percent in the mid-term and 70 teachers (25 percent) in the long-term. The existing amount of approximately 201,600 sq. ft. of space is adequate for mid-term and long-term needs. (See Table 4.4.2.6-3.)



TABLE 4.4.2.6-1

Changes in Teachers and Student Enrollment  
 Big Horn County Schools  
 Baseline Scenario  
 1982, 1995, 2015

	Existing (1982) No.	Mid-term (1995) No. Percent		Long-term (2015) No. Percent	
High School					
Teachers	64	61	-5	66	3
Student Enrollment	670	680	1	720	7
Elementary School					
Teachers	137	158	15	175	28
Student Enrollment	1,600	1,860	16	2,060	29
Total					
Teachers	201	219	9	241	20
Student Enrollment	2,270	2,540	12	2,780	22

Source: Mountain West Research-North, Inc., 1982.

Note: Percentages denote change from the existing year to the mid-term and long-term years, respectively.

TABLE 4.4.2.6-2

Selected Years Public Elementary and High School Enrollments  
Big Horn County  
Baseline Scenario  
1982, 1995, 2015

Schools and Scenarios	Total Enrollment			Percent Change from Existing (1982)	
	Existing (1982)	Mid- Term (1995)	Long- Term (2015)	Mid- Term (1995)	Long- Term (2015)
High School District No. 1 (Hardin)	440	450	480	2	9
Elementary School District No. 17H (Hardin)	840	970	1,050	15	25
Elementary School District No. 17H (Crow Agency)	250	280	310	12	24
Elementary School District No. 17H (Ft. Smith)	60	70	80	17	33
Elementary School District No. 16 (Community)	30	30	30	--	--
Elementary School District No. 17K (Big Bend)	10	10	10	--	--
High School District No. 2 (Lodge Grass)	160	170	180	6	13
Elementary School District No. 27 (Lodge Grass)	300	370	410	23	37
Elementary School District No. 27 (Corral Creek)	10	10	10	--	--

Note: School enrollment rounded to nearest 10 students.

TABLE 4.4.2.6-2 (cont.)

Selected Years Public Elementary and High School Enrollments  
Big Horn County  
Baseline Scenario  
1982, 1995, 2015

Schools and Scenarios	Total Enrollment			Percent Change from Existing (1982)	
	Existing (1982)	Mid- Term (1995)	Long- Term (2015)	Mid- Term (1995)	Long- Term (2015)
Elementary School District No. 29 (Wyo1a)	70	80	90	14	29
Elementary School District No. 1 (Squirrel Creek)	10	10	10	--	--
High School District No. 3 (Pryor)	70	60	60	(17)	(17)
Elementary School District No. 2 (Pryor)	60	70	80	17	33

Source: Mountain West Research-North, Inc., 1982.

Note: School enrollment is rounded to the nearest ten students.  
( ) denotes negative number

Excluding Elementary School District No. 1 (Squirrel Creek), projections for student enrollment show insignificant variation among scenarios. The patterns of annual change in student enrollment represent no significant "peak year" trends of distribution.

TABLE 4.4.2.6-3

Baseline Scenario for Public Elementary and High School Requirements for Selected Years  
 Teachers and Space  
 Big Horn County  
 (Space in 000 sq. ft.)  
 1982, 1995, 2015

School	Total Requirements			Increase over Existing (1982)		Percent Change from Existing (1982)	
	Existing (1982)	Mid- Term (1995)	Long Term (2015)	Mid- Term (1995)	Long- Term (2015)	Mid- Term (1995)	Long- Term (2015)
High School District No. 1 (Hardin)							
Teachers	30	30	30	--	2	--	7
Space	89.6	56.5	59.5	--	--	--	--
Elementary School District No. 17H (Hardin)							
Teachers	56	64	70	8	14	14	25
Space	201.6	77.3	83.7	--	--	--	--
Elementary School District No. 17H (Crow Agency)							
Teachers	23	26	28	3	5	13	22
Space	52.0	22.5	24.4	--	--	--	--
Elementary School District No. 17H (Pt. Smith)							
Teachers	5	6	6	1	1	20	20
Space	16.0	5.8	6.2	--	--	--	--
Elementary School District No. 16 (Community)							
Teachers	2	2	2	--	--	--	--
Space (est.)	3.2	2.6	2.4	--	--	--	--

TABLE 4.4.2.6-3 (cont.)

Baseline Scenario for Public Elementary and High School Requirements for Selected Years  
 Teachers and Space  
 Big Horn County  
 (Space in 000 sq. ft.)  
 1982, 1995, 2015

School	Total Requirements <sup>a</sup>			Increase over Existing (1982)			Percent Change from Existing (1982)		
	Existing (1982)	Mid- Term (1995)	Long Term (2015)	Existing (1982)	Mid- Term (1995)	Long- Term (2015)	Existing (1982)	Mid- Term (1995)	Long- Term (2015)
<b>Elementary School District No. 17K</b>									
(Big Bend)									
Teachers	1	1	1	--	--	--	--	--	--
Space (est.)	1.0	0.6	0.8	--	--	--	--	--	--
<b>High School District No. 2</b>									
(Lodge Grass)									
Teachers	23	20	25	--	--	2	--	--	9
Space	57.6	21.4	22.1	--	--	--	--	--	--
<b>Elementary School District No. 27</b>									
(Lodge Grass)									
Teachers	33	40	46	7	13		21		39
Space (est.)	25.0	29.2	33.1	4.2	8.1		17		32
<b>Elementary School District No. 27</b>									
(Corral Creek)									
Teachers	1	1	1	--	--	--	--	--	--
Space (est.)	1.0	0.9	0.9	--	--	--	--	--	--
<b>Elementary School District No. 29</b>									
(Wyoia)									
Teachers	6	7	8	1	2		17		33
Space	10.8	6.6	7.2	--	--	--	--	--	--

TABLE 4.4.2.6-3 (cont.)

Baseline Scenario for Public Elementary and High School Requirements for Selected Years  
 Teachers and Space  
 Big Horn County  
 (Space in 000 sq. ft.)  
 1982, 1995, 2015

School	Total Requirements			Increase over Existing (1982)			Percent Change from Existing (1982)		
	Existing (1982)	Mid- Term (1995)	Long Term (2015)	Existing (1982)	Mid- Term (1995)	Long- Term (2015)	Existing (1982)	Mid- Term (1995)	Long- Term (2015)
Elementary School District No. 1									
(Squirrel Creek)									
Teachers	1	2	3		1	2		100	200
Space	1.0	1.8	2.2		0.8	1.2		80	120
High School District No. 3									
(Pryor)									
Teachers	11	11	11		--	--		--	--
Space	42.0	8.0	7.9		--	--		--	--
Elementary School District No. 2									
(Pryor)									
Teachers	9	9	10		--	1		--	11
Space	7.2	5.8	6.2		--	--		--	--

Source: Mountain West Research-North, Inc., 1982.

Note: Calculations based on unrounded forecasts (see Appendix D, Table D-2).

Elementary School District No. 17H (Crow Agency). Student enrollment is forecast to increase from the existing number of approximately 250 students to 280 students (12 percent) in the mid-term and 310 students (24 percent) in the long-term (see Table 4.4.2.6-2). The existing number of 23 teachers will need to increase to 26 teachers (13 percent) in the mid-term and 28 teachers (22 percent) in the long-term. The existing amount of approximately 52,000 sq. ft. of space is expected to be adequate for mid-term and long-term needs. (See Table 4.4.2.6-3)

Elementary School District No. 17H (Ft. Smith). Student enrollment is forecast to increase from the existing number of approximately sixty students to seventy students (17 percent) in the mid-term and eighty students (33 percent) in the long-term (see Table 4.4.2.6-2). The existing number of five teachers will increase to six teachers (20 percent) in both the mid-term and long-term. The existing amount of approximately 16,000 sq. ft. of space is expected to be adequate for mid-term and long-term needs. (See Table 4.4.2.6-3.)

Elementary School District No. 16 (Community). Student enrollment is expected to remain constant at the existing number of approximately thirty students over the forecast period (see Table 4.4.2.6-2). The existing staff (two teachers) and space is expected to be adequate for mid-term and long-term needs. (See Table 4.4.2.6-3).

Elementary School District No. 17K (Big Bend). Student enrollment is expected to remain constant at the existing (1982) number of approximately ten students over the forecast period (see Table 4.4.2.6-2). The existing staff (one teacher) and space are expected to be adequate for mid-term and long-term needs. (See Table 4.4.2.6-3.)

High School District No. 2 (Lodge Grass). Student enrollment is forecast to increase from the existing number of approximately 160 students to 170 students (6 percent) in the mid-term and 180 students (13 percent) in the long-term (see Table 4.4.2.6-2). Although the existing number of 23 teachers is expected to be adequate for mid-term long-term needs will increase to 25 teachers (9 percent). The existing amount of approximately 57,600 sq. ft. of space is projected to be adequate for mid-term and long-term needs. (See Table 4.4.2.6-3.)

Elementary School District No. 27 (Lodge Grass). Student enrollment is expected to increase from the existing number of approximately 300 students to 370 students (23 percent) in the mid-term and 410 students (37 percent) in the long-term (see Table 4.4.2.6-2). The existing number of 33 teachers will need to increase to 40 teachers (21 percent) in the mid-term and 46 teachers (39 percent) in the long-term. The requirements for space is projected to increase from the existing amount of approximately 25,000 sq. ft. to 29,200 sq. ft. (17 percent) in the mid-term and 33,100 sq. ft. (32 percent) in the long-term (see Table 4.4.2.6-3). Current plans for the construction of facilities for an elementary school in Lodge Grass are discussed in Section 3.3.2.4.

Elementary School District No. 27 (Corral Creek). Although student enrollment is expected to remain constant for the mid-term, there is no forecast increase from the existing number of approximately ten students (see Table 4.4.2.6-2). The single existing teacher and the existing amount of space are expected to be adequate for mid-term and long-term needs (see Table 4.4.2.6-3).

Elementary School District No. 29 (Wyola). Student enrollment is forecast to increase from the existing number of approximately seventy students to eighty students (14 percent) in the mid-term and ninety

students (29 percent) in the long-term (see Table 4.4.2.6-2). The existing number of six teachers will therefore need to increase to seven teachers (17 percent) in the mid-term and eight teachers (32 percent) in the long-term. The existing amount of approximately 10,800 sq. ft. of space is expected to be adequate for mid-term and long-term needs. (See Table 4.4.2.6-3.)

Elementary School District No. 1 (Squirrel Creek). Student enrollment is expected to be constant at the existing number of approximately ten students throughout the study period (see Table 4.4.2.6-2). The single existing teacher and the existing amount of space are expected to be adequate for the mid-term and long-term needs (see Table 4.4.2.6-3).

High School District No. 3 (Pryor). Student enrollment is forecast to decrease from the existing number of approximately seventy students to sixty students (17 percent) in both the mid-term and the long-term (see Table 4.4.2.6-2). The existing number of eleven teachers and the existing amount of approximately 42,000 sq. ft. of space are expected to be adequate for the mid-term and long-term needs (see Table 4.4.2.6-3).

Elementary School District No. 2 (Pryor). Student enrollment is forecast to increase from the existing number of approximately sixty students to seventy students (17 percent) in the mid-term and eighty students (33 percent) in the long-term (see Table 4.4.2.6-2). Although the existing number of nine teachers is adequate for mid-term needs, long-term needs will increase to ten teachers (11 percent). The existing amount of approximately 7,200 sq. ft. of space is expected to be adequate for mid-term and long-term needs. (See Table 4.4.2.6-3.)

#### Fiscal

This section discusses the fiscal conditions of the county school districts for the baseline scenario. Since Big Horn County receives almost no population impact from the proposed action, the change in enrollments for each district due to any of the proposed mines are forecast to be minimal or nonexistent. For this reason, given the particular nature of school financing in Montana, (see Section 8.3.2.5), the fiscal conditions of the districts in the impact scenarios -- with one exception -- would be identical to the conditions forecast for the baseline scenarios. Consequently, all data presented in this section apply not only to the baseline, but to all with-project scenarios as well. However, there are forecast to be significant effects on the net contribution to the state school foundation program.

Four topics are discussed: (1) revenue forecasts, (2) expenditure forecasts, (3) net fiscal balance, and (4) capital requirements. This analysis will identify the districts that may have revenue shortfalls during the forecast period. The revenue and expenditure forecasts represent district D & M budgets and exclude major capital funds or purchases.

A key component of the county school finance conditions is the state school equalization program. As discussed in Section 3.3.2.5, the state school foundation program is the basis of the revenue generation for the districts. Big Horn County has been a net contributor to the state foundation program in the past. It is anticipated that the county will continue to provide surplus funds to the state throughout the major portion of the forecast period. Table 4.4.2.6-4 presents the forecasted net contribution to the state program from both the high school and elementary districts' mandatory levies. The surplus in foundation money produced by the county is expected to increase from \$1.66 million in 1982 to a maximum of \$4.04 million in 1995. Only after 2010 would the county not be a net contributor to the fund. This is caused by a loss of tax base in the county due to the closure of several of the existing coal mines.



TABLE 4.4.2.6-4

Net Contribution to State School Foundation Program  
Baseline Scenario  
Big Horn County  
1982-2015  
(1982 \$000)

Year	Elementary			High School			Total Surplus
	Revenue	Expend- itures	Net Surplus	Revenue	Expend- itures	Net Surplus	
1982	3,095	2,139	956	1,857	1,152	705	1,661
1983	3,028	2,151	877	1,817	1,094	723	1,600
1984	2,958	2,184	774	1,775	1,023	752	1,526
1985	3,406	2,247	1,159	2,043	995	1,048	2,207
1986	3,786	2,256	1,530	2,272	1,004	1,268	2,798
1987	4,231	2,294	1,937	2,539	1,020	1,519	3,456
1988	4,302	2,331	1,971	2,581	1,035	1,546	3,517
1989	4,464	2,393	2,071	2,679	1,012	1,667	3,738
1990	4,501	2,447	2,054	2,700	1,013	1,687	3,741
1995	4,827	2,497	2,330	2,896	1,189	1,707	4,037
2000	4,261	2,403	1,858	2,557	1,221	1,336	3,194
2005	2,670	2,433	237	1,602	1,176	426	663
2010	2,690	2,537	153	1,614	1,152	462	615
2015	1,514	2,723	-1,209	908	1,235	-327	-1,536

Source: Mountain West Research-North, Inc., 1983.

#### High School District No. 1 (Hardin)

Revenue forecasts. The forecasted revenues for the district are presented in Table 4.4.2.6-5. Total revenues, excluding major capital funds, are anticipated to increase from \$2.01 million in the 1983 budget to \$2.20 million by 2015, an increase of 9.3 percent. The revenues are actually expected to fall until 1985, when they will bottom out at \$1.81 million. General fund revenue is forecast to increase by \$0.14 million, from \$1.38 million in the 1983 budget to \$1.52 million by 2015. Throughout the forecast period, the county equalization money and the federal government and cash reappropriated funds will remain the major sources of general fund revenue for the district. The transportation fund revenue is forecast to increase from \$123,000 in 1982 to \$133,000 by 2015. Retirement fund revenues are expected to increase to \$153,000 by 2015, an increase of \$12,000.

Expenditure forecasts. Table 4.4.2.6-6 presents the forecast district expenditures for the baseline scenario. Total noncapital spending is forecast to increase from \$1.93 million in the 1983 budget to \$2.08 million by 2015, an increase of 8.2 percent. General fund expenditures are expected to increase from \$1.38 million to \$1.49 million. Transportation spending is anticipated to increase from \$123,000 to \$133,000. Expenditures on retirement are forecast to increase 7.7 percent to \$153,000 by 2015. The other fund expenditures, which are comprised primarily of insurance and adult education, are expected to increase to \$303,000 by 2015.

Fiscal balance. Table 4.4.2.6-7 presents the net fiscal balance forecasts for the school district. The district is expected to have a substantial positive fiscal balance throughout the period in the baseline scenario. This positive fiscal balance grows from about \$70,000 in the 1983 budget to a maximum of \$114,000 in 2015. Throughout the forecast period, the positive balance oscillates within the \$90,000 to \$110,000 range.

Capital expenditures. The school district is not expected to make major capital expenditures during the forecast period. The district has an outstanding bond debt of \$650,000 in the 1983 budget, which must be retired during the forecast period.

#### Elementary District No. 17H

Revenue forecasts. The forecast revenue for the district is presented in Table 4.4.2.6-8. The total district revenues, excluding revenue for major capital purchases, are forecast to increase from \$3.43 million in the 1983 budget to \$4.26 million by 2015, an increase of 24.3 percent. The revenues demonstrate a fairly consistent rise throughout the forecast period, with an interim peak of \$3.94 million in 1995 and an eventual peak of \$4.26 million in 2015. General fund revenues are expected to increase from \$2.53 million in the current budget to \$3.15 million in 2015, an increase of 24.2 percent. The county equalization funds and the federal and cash reappropriated revenues are the dominant sources of revenue for the district over the forecast period. They combine to account for almost 96 percent of the general fund revenue. The transportation fund revenues are expected to increase from \$153,000 in the 1982 budget to \$191,000 by 2015.

Expenditure forecasts. Table 4.4.2.6-9 presents the expenditure forecasts for the district. Total spending is forecast to increase from \$3.25 million in the 1983 budget to \$4.04 million in 2015, an increase of 24.3 percent. General fund spending is expected to increase from \$2.53 million in the current budget to \$3.15 million by 2015. Transportation, retirement, and other expenditures are forecast to increase to \$191,000, \$375,000, and \$328,000, respectively, by 2015.

TABLE 4.4.2.6-5

Revenue Forecasts for High School District No. 1  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund						Retire- ment Total	Trans- portation Total	Other Total	Grand Total
	District Levy	County Equal- ization	State Equal- ization	Cash Reappro- priation	Other	Total				
1982	140	662	0	579	0	1,381	141	123	364	2,009
1983	140	636	0	557	0	1,333	136	118	350	1,937
1984	142	594	0	520	0	1,256	127	110	327	1,820
1985	145	590	0	516	0	1,251	126	110	324	1,811
1986	145	599	0	524	0	1,268	128	111	329	1,836
1987	148	600	0	525	0	1,273	128	112	330	1,843
1988	150	615	0	538	0	1,303	131	114	338	1,886
1989	154	593	0	519	0	1,266	126	110	326	1,828
1990	157	590	0	516	0	1,263	126	110	324	1,823
1995	161	680	0	595	0	1,436	145	126	374	2,081
2000	154	701	0	613	0	1,468	149	130	385	2,132
2005	156	681	0	596	0	1,433	145	127	375	2,080
2010	162	668	0	584	0	1,414	142	124	367	2,047
2015	174	716	0	626	0	1,516	153	133	394	2,196

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

TABLE 4.4.2.6-6

Expenditure Forecasts for High School District No. 1  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund Expenditures	Transportation Fund Expenditures	Retirement Fund Expenditures	Other Expenditures	Total
1982	1,380	123	142	280	1,925
1983	1,327	118	136	269	1,850
1984	1,239	110	127	251	1,727
1985	1,230	110	126	249	1,715
1986	1,249	111	128	253	1,741
1987	1,252	112	128	254	1,746
1988	1,283	114	132	260	1,789
1989	1,236	110	127	251	1,724
1990	1,230	110	126	249	1,715
1995	1,418	126	145	287	1,976
2000	1,462	130	150	296	2,038
2005	1,421	127	146	288	1,982
2010	1,393	124	143	282	1,942
2015	1,493	133	153	303	2,082

Source: Mountain West Research-North, Inc., 1983.

Note: does not include major capital or debt service.

TABLE 4.4.2.6-7

Net Fiscal Balance for High School District No. 1  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	Revenues	Expend- itures	Balance
1982	2,218	2,148	70
1983	1,937	1,850	87
1984	1,820	1,727	93
1985	1,811	1,715	96
1986	1,836	1,741	95
1987	1,843	1,746	97
1988	1,886	1,789	97
1989	1,828	1,724	104
1990	1,823	1,715	108
1995	2,081	1,976	105
2000	2,132	2,038	94
2005	2,080	1,982	98
2010	2,047	1,942	105
2015	2,196	2,082	114

Source: Mountain West Research-North, Inc., 1983.

TABLE 4.4.2.6-8

Revenue Forecasts for Elementary District No. 17H  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund					Trans- portation Total	Retire- ment Total	Other Total	Grand Total
	County Equal- ization	State Equal- ization	Cash Reappro- priation	Total	Total				
1982	1,461	112	961	2534	153	302	441	3,430	
1983	1,466	112	964	2542	154	303	442	3,441	
1984	1,479	113	973	2565	155	306	447	3,473	
1985	1,513	116	995	2624	159	313	456	3,542	
1986	1,519	116	999	2634	160	314	458	3,566	
1987	1,543	118	1,015	2676	162	319	466	3,623	
1988	1,565	120	1,029	2714	164	323	472	3,673	
1989	1,604	123	1,055	2782	169	331	484	3,766	
1990	1,638	125	1,078	2841	172	339	494	3,846	
1995	1,676	128	1,103	2907	176	346	506	3,935	
2000	1,610	123	1,059	2792	169	333	486	3,780	
2005	1,624	124	1,068	2816	171	336	490	3,813	
2010	1,692	129	1,113	2934	178	350	511	3,973	
2015	1,815	139	1,194	3148	191	375	548	4,262	

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

TABLE 4.4.2.6-9

Expenditure Forecasts for Elementary District No. 17H  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund Expenditures	Transportation Fund Expenditures	Retirement Fund Expenditures	Other Expenditures	Total
1982	2,533	153	302	264	3,252
1983	2,541	154	303	265	3,263
1984	2,566	155	306	267	3,294
1985	2,623	159	313	273	3,368
1986	2,634	160	314	274	3,382
1987	2,676	162	319	279	3,436
1988	2,713	164	323	283	3,483
1989	2,781	169	331	290	3,571
1990	2,841	172	339	296	3,648
1995	2,907	176	346	303	3,732
2000	2,793	169	333	291	3,586
2005	2,817	171	336	293	3,617
2010	2,934	178	350	306	3,768
2015	3,147	191	375	328	4,041

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

Fiscal balance. The net fiscal balance for the baseline forecasts are presented in Table 4.4.2.6-10. The district is forecast to have a substantial positive fiscal balance throughout the entire forecast period. The balance is forecast to increase from \$178,000 in the current year to \$221,000 by 2015, an increase of 24.2 percent. The positive balance increases consistently over the period with an interim peak occurring at \$203,000 in 1995.

Capital spending. The district would not require any major capital improvements over the forecast period. The district would have to retire an existing bond debt of \$750,000 during the forecast period.

#### Elementary District No. 16

Revenue forecasts. Table 4.4.2.6-11 presents the district revenues forecasts for the baseline scenario. Total district revenues are forecast to increase from \$81,000 in the current budget to \$93,000 by 2015, an increase of 14.8 percent. Total revenue is expected to peak in 1995 at \$99,000 and then decrease to \$93,000 by 2015. General fund revenue is forecast to increase from \$49,000 to \$57,000 over the period. General fund revenue is forecast to peak in 1995 at \$60,000. The general fund revenue is comprised totally of county equalization funds and a voted district levy throughout the entire period. The transportation fund revenues are expected to increase from \$17,000 in 1983 to \$20,000 in 2015; they would peak at \$21,000 in 1995. The retirement fund revenues are forecast to remain constant for most of the period, with declines surfacing in the mid-1980s and a peak occurring in 1995. The "other" revenue category is expected to rise by \$1,000 over the entire period, reaching \$11,000 by 2015. It peaks at \$12,000 in 1995.

Expenditure forecasts. Table 4.4.2.6-12 presents the forecast expenditures for the district. Total spending is expected to increase from \$77,000 in the 1983 budget to \$93,000 by 2015, an increase of 20.8 percent. Spending peaks at \$95,000 in 1995. General fund spending is forecast to increase 22 percent to \$60,000 by 2015. The peak of \$60,000 would also be reached in 1995. Transportation spending is expected to increase from \$15,000 to \$18,000 over the period. The retirement and other expenditures would be \$5,000 and \$10,000, respectively, by 2015.

Fiscal balance. Table 4.4.2.6-13 presents the fiscal balance forecast for the district. The district shows a positive balance throughout the forecast period. The 1983 budget reveals that the current year's balance will be \$8,000. The balance is expected to be reduced to the \$2,000 to \$4,000 range over the forecast period, with a balanced budget occurring in 2015.

Capital spending. The district will not require any additional capital facilities during the forecast period. The district does have an outstanding debt of \$7,500 that must be retired during the forecast period.

#### Elementary District No. 17X

Revenue forecasts. Table 4.4.2.6-14 presents the forecast district revenues for the baseline scenario. Total district revenues are forecast to increase from \$24,000 in the current year's budget to \$28,000 by 2015. The revenues are forecast to remain fairly constant, (in the \$24,000 to \$25,000 range), throughout much of the forecast period. The rise to \$28,000 would occur in the later years. General fund revenues are projected to increase 25 percent to \$24,000 by 2015. The transportation, retirement, and other total revenues are forecast to remain constant at \$2,000, \$1,000, and \$1,000, respectively.



TABLE 4.4.2.6-10

Net Fiscal Balance for Elementary District No. 17H  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	Revenues	Expend- itures	Balance
1982	3,430	3,252	178
1983	3,441	3,263	178
1984	3,473	3,294	179
1985	3,542	3,368	174
1986	3,566	3,382	184
1987	3,623	3,436	187
1988	3,673	3,483	190
1989	3,766	3,571	195
1990	3,846	3,648	198
1995	3,935	3,732	203
2000	3,780	3,586	194
2005	3,813	3,617	196
2010	3,973	3,768	205
2015	4,262	4,041	221

Source: Mountain West Research-North, Inc., 1983.

TABLE 4.4.2.6-11

Revenue Forecasts for Elementary District No. 16  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund			Trans- portation Total	Retire- ment Total	Other Total	Grand Total
	District Levy	County Equal- ization	Total				
1982	17	32	49	17	5	10	81
1983	17	32	49	17	5	10	81
1984	16	29	45	16	4	9	74
1985	16	29	45	16	4	9	74
1986	16	29	45	16	4	9	74
1987	16	29	45	16	4	9	74
1988	17	32	49	17	5	10	81
1989	16	29	45	16	4	9	74
1990	18	34	52	18	5	11	86
1995	21	39	60	21	6	12	99
2000	20	37	57	20	5	11	93
2005	18	34	52	18	5	11	86
2010	18	34	52	18	5	11	86
2015	20	37	57	20	5	11	93

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

TABLE 4.4.2.6-12

Expenditure Forecasts for Elementary District No. 16  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund Expenditures	Transportation Fund Expenditures	Retirement Fund Expenditures	Other Expenditures	Total
1982	49	15	5	8	77
1983	49	15	5	8	77
1984	45	14	4	8	71
1985	45	14	4	8	71
1986	45	14	4	8	71
1987	45	14	4	8	71
1988	49	15	5	8	77
1989	45	14	4	8	71
1990	53	17	5	9	84
1995	60	19	6	10	95
2000	56	18	5	10	89
2005	53	17	5	9	84
2010	53	17	5	9	84
2015	60	18	5	10	93

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

TABLE 4.4.2.6-13

Net Fiscal balance for Elementary District No. 16  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	Revenues	Expend- itures	Balance
1982	85	77	8
1983	81	77	4
1984	74	71	3
1985	74	71	3
1986	74	71	3
1987	74	71	3
1988	81	77	4
1989	74	71	3
1990	86	84	2
1995	99	95	4
2000	93	89	4
2005	86	84	2
2010	86	84	2
2015	93	93	0

Source: Mountain West Research-North, Inc., 1983.

TABLE 4.4.2.6-14

Revenue Forecasts for Elementary District No. 17K  
 All Scenarios  
 Big Horn County  
 19082-2015  
 (1982 \$000)

Year	General Fund					Retire- ment Total	Other Total	Grand Total
	District Levy	County Equal- ization	State Equal- ization	Total	Trans- portation Total			
1982	3	16	1	20	2	1	1	24
1983	3	16	1	20	2	1	1	24
1984	3	17	1	21	2	1	1	25
1985	3	17	1	21	2	1	1	25
1986	3	16	1	20	2	1	1	24
1987	3	16	1	20	2	1	1	24
1988	3	16	1	20	2	1	1	24
1989	3	16	1	20	2	1	1	24
1990	3	16	1	20	2	1	1	24
1995	3	16	1	20	2	1	1	24
2000	3	17	1	21	2	1	1	25
2005	3	17	1	21	2	1	1	25
2010	4	17	1	22	2	1	1	26
2015	4	19	1	24	2	1	1	28

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

Expenditure forecasts. The forecast expenditures for the district are presented in Table 4.4.2.6-15. Total spending is forecast to increase from \$24,000 in the 1983 budget to \$28,000 by 2015, an increase of 16.7 percent. General fund spending is expected to increase 25 percent from \$20,000 in the current budget to \$24,000 by 2015. The transportation, retirement, and the other expenditures would remain constant over the period.

Fiscal balance. Table 4.4.2.6-16 presents the net fiscal balance of the district for the forecast period. The district is forecast to have a balanced budget for most of the years in the forecast period. Deficits of only \$1,000 are caused by rounding of revenue and expenditure numbers. These are not considered to be structural or significant.

Capital. The district would not have to add any major capital facilities during the forecast period. The district does not have any outstanding debt.

#### High School District No. 2 (Lodge Grass)

Revenue forecasts. The revenue forecasts for the district are presented in Table 4.4.2.6-17. Total revenues for the district are projected to increase from \$1.36 million in the 1983 budget to \$1.50 million by 2015. The total revenue is expected to decrease to a low of \$1.13 million during the mid- to late-1980s and then increase to \$1.50 million by 2015. The revenues demonstrate an interim peak of \$1.49 million in 2000. General fund revenues are expected to increase by 10.6 percent, to \$1.30 million in 2015. The cash reappropriated revenue would remain the dominant source for the general fund, comprising 51.7 percent of the general fund budget. The transportation revenues are projected to rise from \$82,000 to \$91,000 during the baseline forecast period. Retirement and other revenues are forecast to increase to \$87,000 and \$23,000 from \$79,000 and \$21,000, respectively.

Expenditure forecasts. Table 4.4.2.6-18 presents the forecast expenditures by major fund for the district. Total spending is expected to increase from \$1.37 million in the 1983 budget to \$1.51 million by 2015, an increase of 10.6 percent. Spending is forecast to drop to a low of \$1.14 million by 1985. It would then increase to an interim peak of \$1.50 million in 2000 and eventually peak at \$1.51 million by 2015. General fund spending is expected to increase over 10 percent to \$1.30 million by 2015. General fund spending would reach an interim peak of \$1.29 million in 2000. The transportation, retirement, and other fund spending would increase from \$73,000, \$79,000, and \$20,000 to \$80,000, \$88,000, and \$22,000, respectively.

Fiscal balance. Table 4.4.2.6-19 presents the district's forecast net fiscal balance for the baseline scenario. The district is expected to carry a positive balance of from \$8,000 to \$12,000 for each year in the period. Because the current year's budget has a surplus, this condition is expected to be maintained for the remainder of the period. Much of the surplus would be caused by a net positive balance of \$9,000 in the district transportation fund in the current budget. The other funds operate in balance throughout most of the forecast period.

Capital. The district would not require any major capital additions during the forecast period. It would, however, have to service an existing debt balance of \$2.27 million during the period.

TABLE 4.4.2.6-15

Expenditure Forecasts for Elementary District No. 17K  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund Expenditures	Transportation Fund Expenditures	Retirement Fund Expenditures	Other Expenditures	Total
1982	20	2	1	1	24
1983	20	2	1	1	24
1984	22	2	1	1	26
1985	22	2	1	1	26
1986	20	2	1	1	24
1987	20	2	1	1	24
1988	20	2	1	1	24
1989	20	2	1	1	24
1990	20	2	1	1	24
1995	20	2	1	1	24
2000	22	2	1	1	26
2005	22	2	1	1	26
2010	22	2	1	1	26
2015	24	2	1	1	28

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

TABLE 4.4.2.6-16

Net Fiscal Balance for Elementary District No. 17K  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	Revenues	Expend- itures	Balance
1982	24	24	0
1983	24	24	0
1984	25	26	-1
1985	25	26	-1
1986	24	24	0
1987	24	24	0
1988	24	24	0
1989	24	24	0
1990	24	24	0
1995	24	24	0
2000	25	26	-1
2005	25	26	-1
2010	26	26	0
2015	28	28	0

Source: Mountain West Research-North, Inc., 1983.



TABLE 4.4.2.6-17

Revenue Forecasts for High School District No. 2  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	District Levy	General Fund			Trans- portation Total	Retire- ment Total	Other Total	Grand Total
		County Equal- ization	Cash Reappro- priation	Total				
1982	249	319	607	1,175	82	79	21	1,357
1983	233	299	569	1,101	77	74	20	1,272
1984	219	281	535	1,035	72	70	19	1,196
1985	207	265	505	977	68	66	18	1,129
1986	207	265	505	977	68	66	18	1,129
1987	216	277	527	1,020	71	69	18	1,178
1988	216	277	527	1,020	71	69	18	1,178
1989	216	277	527	1,020	71	69	18	1,178
1990	219	281	535	1,035	72	70	19	1,196
1995	266	341	649	1,256	88	84	22	1,450
2000	274	351	668	1,293	90	87	23	1,493
2005	264	339	645	1,248	87	84	22	1,441
2010	257	329	626	1,212	85	82	22	1,401
2015	275	353	672	1,300	91	87	23	1,501

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

TABLE 4.4.2.6-18

Expenditure Forecasts for High School District No. 2  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund Expenditures	Transportation Fund Expenditures	Retirement Fund Expenditures	Other Expenditures	Total
1982	1,174	73	79	20	1,346
1983	1,101	68	74	19	1,262
1984	1,035	64	70	18	1,187
1985	976	60	66	17	1,119
1986	976	60	66	17	1,119
1987	1,020	63	69	17	1,169
1988	1,020	63	69	17	1,169
1989	1,020	63	69	17	1,169
1990	1,035	64	70	18	1,187
1995	1,255	78	85	21	1,439
2000	1,242	80	87	22	1,481
2005	1,248	77	84	21	1,430
2010	1,211	75	82	21	1,389
2015	1,299	80	88	22	1,489

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

TABLE 4.4.2.6-19

Net Fiscal Balance for High School District No. 2  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	Revenues	Expend- itures	Balance
1982	1,357	1,346	11
1983	1,272	1,262	10
1984	1,196	1,187	9
1985	1,129	1,119	10
1986	1,129	1,119	10
1987	1,178	1,169	9
1988	1,178	1,169	9
1989	1,178	1,169	9
1990	1,196	1,187	9
1995	1,450	1,439	11
2000	1,493	1,481	8
2005	1,441	1,430	11
2010	1,401	1,389	12
2015	1,501	1,489	12

Source: Mountain West Research-North, Inc., 1983.

#### Elementary District No. 27

Revenue forecasts. Table 4.4.2.6-20 presents the forecast district revenues for the baseline scenario. Total district revenues are forecast to increase from \$1.18 million in the 1983 budget to \$1.64 million in 2010, an increase of 38.9 percent. The revenues are expected to grow steadily over the forecast period, with the only decrease occurring between 1995 and 2000. General fund revenues are expected to increase from \$986,000 in the 1983 budget to \$1.37 million in 2015. County equalization and cash reappropriated money would be the major general fund revenue sources for the district, comprising 91.5 percent of the general fund revenues. The transportation revenue is forecast to increase from \$78,000 in 1982 to \$108,000 in 2015. Retirement and other fund revenues are expected to increase \$37,000 and \$8,000, respectively, over the forecast period.

Expenditure forecasts. Table 4.4.2.6-21 presents the forecast district expenditures for the baseline scenario. Total noncapital district spending is forecast to increase 38.7 percent from \$1.18 million in the current budget to \$1.64 million in 2015. The expenditures are expected to increase steadily to 1995 and then drop by 2000. After 2000, the expenditures are forecast to increase to \$1.64 million in 2015. General fund spending is projected to increase from \$987,000 in 1982 to \$1.37 million in 2015. Transportation spending is expected to increase \$30,000 and retirement spending is forecast to increase \$37,000. The other expenditures are expected to rise to \$28,000 over the forecast period.

Fiscal balance. The net fiscal balance for the district over the forecast period is presented in Table 4.4.2.6-22. The district is forecast to operate essentially with a balanced budget throughout the entire period. The small surpluses of \$1,000 and \$2,000 are primarily the result of rounding.

Capital. Because the district is currently at capacity in its Lodge Grass facility, construction of a new facility is planned in 1983. The district is hoping to finance the expansion through grant money so they will not add to the present \$225,000 debt. The projected capital expenditure is about \$600,000. If the facility cost cannot be financed by a grant, then the debt of the district will increase to at least \$825,000, or about 87 percent of the district's bonding limit of \$950,000.

#### Elementary District No. 29

Revenue forecast. The forecast district revenues for the baseline scenario are presented in Table 4.4.2.6-23. Total district revenues are forecast to increase from \$333,000 in 1982 to \$449,000 in 2015, an increase of 34.8 percent. These noncapital expenditures are forecast to increase steadily over the period, except for a drop between 1995 and 2000. General fund revenue is forecast to increase from \$249,000 in 1982 to \$328,000 in 2015. The county equalization and the cash reappropriated money would account for almost 94 percent of the general fund revenue throughout the period. The transportation fund revenues are expected to increase \$20,000, the retirement fund will increase \$8,000, and the other funds increase \$4,000.

Expenditure forecast. Table 4.4.2.6-24 presents the forecast district expenditures for the baseline scenario. Total district spending is expected to increase from \$326,000 in 1983 budget to \$439,000 in 2015, an increase of 34.6 percent. General fund spending is forecast to increase from \$243,000 to \$327,000, while transportation spending is expected to increase \$18,000 to \$68,000 in 2015. The projected spending from the retirement fund is expected to rise \$7,000, and the other fund expenditures are expected to increase \$4,000.

TABLE 4.4.2.6-20

Revenue Forecasts for Elementary District No. 27  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund					Trans- portation Total	Retire- ment Total	Other Total	Grand Total
	County Equal- ization	State Equal- ization	Cash Reappro- priation	Total	Total				
1982	409	83	494	986	78	95	21		1,180
1983	413	84	499	996	79	96	21		1,192
1984	427	87	515	1,029	81	99	22		1,231
1985	447	91	539	1,077	85	104	23		1,289
1986	452	92	546	1,090	86	105	23		1,304
1987	457	93	552	1,102	87	106	23		1,318
1988	467	95	563	1,125	89	108	24		1,346
1989	485	99	586	1,170	92	113	25		1,400
1990	497	101	600	1,198	95	115	25		1,433
1995	501	102	605	1,208	95	116	26		1,445
2000	487	99	587	1,173	93	113	25		1,404
2005	503	102	607	1,212	96	117	26		1,451
2010	529	108	639	1,276	101	123	27		1,527
2015	568	116	686	1,370	108	132	29		1,639

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

TABLE 4.4.2.6-21

Expenditure Forecasts for Elementary District No. 27  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund Expenditures	Transportation Fund Expenditures	Retirement Fund Expenditures	Other Expenditures	Total
1982	987	78	95	20	1,180
1983	996	79	96	20	1,191
1984	1,029	81	99	21	1,230
1985	1,077	85	104	22	1,288
1986	1,090	86	105	22	1,303
1987	1,102	87	106	22	1,317
1988	1,125	89	108	23	1,345
1989	1,170	92	113	24	1,399
1990	1,199	95	115	24	1,433
1995	1,209	95	116	25	1,445
2000	1,173	93	113	24	1,403
2005	1,212	96	117	25	1,450
2010	1,276	101	123	26	1,526
2015	1,369	108	132	28	1,637

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

TABLE 4.4.2.6-22

Net Fiscal Balance for Elementary District No. 27  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	Revenues	Expend- itures	Balance
1982	1,180	1,180	0
1983	1,192	1,191	1
1984	1,231	1,230	1
1985	1,289	1,288	1
1986	1,304	1,303	1
1987	1,318	1,317	1
1988	1,346	1,345	1
1989	1,400	1,399	1
1990	1,433	1,433	0
1995	1,445	1,445	0
2000	1,404	1,403	1
2005	1,451	1,450	1
2010	1,527	1,526	1
2015	1,639	1,637	2

Source: Mountain West Research-North, Inc., 1983.

TABLE 4.4.2.6-23

Revenue Forecasts for Elementary District No. 29  
 All scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund					Retire- ment Total	Other Total	Grand Total
	County Equal- ization	State Equal- ization	Cash Reappro- priation	Total	Trans- portation Total			
1982	99	15	130	244	56	22	11	333
1983	100	15	132	247	57	23	12	339
1984	103	15	136	254	59	23	12	348
1985	109	16	144	269	62	25	13	369
1986	109	16	144	269	62	25	13	369
1987	112	17	148	277	64	25	13	379
1988	115	17	151	283	66	26	13	388
1989	116	17	153	286	67	26	13	392
1990	118	18	155	291	67	27	14	399
1995	121	18	159	298	69	27	14	408
2000	118	18	155	291	67	27	14	399
2005	121	18	159	298	69	27	14	408
2010	124	18	163	305	71	28	14	418
2015	133	20	175	328	76	30	15	449

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.



TABLE 4.4.2.6-24

Expenditure Forecasts for Elementary District No. 29  
 All scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund Expenditures	Transportation Fund Expenditures	Retirement Fund Expenditures	Other Expenditures	Total
1982	243	50	23	10	326
1983	247	51	23	11	332
1984	254	53	24	11	342
1985	269	56	25	11	361
1986	269	56	25	11	361
1987	276	57	26	12	371
1988	283	59	26	12	380
1989	287	59	27	12	385
1990	291	60	27	12	390
1995	298	62	28	13	401
2000	291	60	27	12	390
2005	298	62	28	13	401
2010	305	63	28	13	409
2015	327	68	30	14	439

Source: Mountain West Research-North, Inc., 1983

Note: Does not include major capital or debt service.

Fiscal balance. The forecast net fiscal balance of the district is presented in Table 4.4.2.6-25. The district is forecast to have a positive fiscal balance ranging from \$6,000 to \$10,000 throughout the entire forecast period. The transportation fund would be the major contributor to the surplus income for the district. This fund's current surplus of \$6,000 in 1982 would rise to \$8,000 by 2015.

Capital. The district would not require any additions to their existing capital facilities during the forecast period. The district does not have any outstanding debt.

#### Elementary District No. 1

Revenue forecast. Table 4.4.2.6-26 presents the district revenue forecasts for the baseline scenario. Total district revenues are forecast to increase from \$105,000 in 1982 to \$144,000 in 2015, an increase of 37 percent. The total revenues would grow to a maximum of \$157,000 in 1995 and then decline until 2005 before rising again to \$144,000 in 2015. General fund revenues are expected to increase from \$56,000 in 1982 to \$78,000 in 2015. These revenues would reach a high during 1995 of \$84,000. Cash reappropriated money would be the dominant general fund revenue source for the district, contributing about 53 percent of the general fund revenues. The transportation fund revenues are expected to increase from \$37,000 in 1982 to a high of \$56,000 in 1995 and then drop to \$51,000 by the end of the forecast period. The retirement fund and other fund revenues are expected to peak at \$11,000 and \$6,000, respectively, in 1995 and then drop to \$10,000 and \$5,000, respectively, by the end of the period.

Expenditure forecast. Table 4.4.2.6-27 presents the forecast district expenditures for the baseline scenario. Total spending is expected to increase from \$106,000 in 1982 to a high of \$157,000 in 1995 and then drop to \$143,000 by 2015. General fund expenditures are forecast to increase from \$56,000 in 1982 to \$77,000 in 2015, a rise of about 34 percent. General fund spending would peak at \$84,000 in 1995, representing a maximum change of 50 percent over 1982. Transportation and other spending would increase from \$8,000 and \$4,000 to \$10,000 and \$5,000, respectively, over the period.

Fiscal balance. Table 4.4.2.6-28 presents the net fiscal balance of the district for the forecast period. The district will operate essentially in balance throughout the period. The negative balance in 1982 and 1983 is due primarily to rounding of revenues and expenditures.

Capital. The district would not require any additional capital facilities during the forecast period. The district does not have any outstanding debt.

#### High School District No. 3 (Pryor)

Revenue forecast. Table 4.4.2.6-29 presents the forecast district revenues for the baseline scenario. Total revenues are forecast to decrease from \$473,000 in the 1983 budget to \$458,000 in 2015, a decline of 3.2 percent. Revenues are expected to drop between 1982 and 1990 and then recover to \$458,000 by the end of the forecast period. General fund revenues are also expected to decrease over the period, from \$394,000 to \$381,000. The county equalization and cash reappropriated monies are expected to be the major revenue sources for the district, accounting for about 90 percent of the district's general fund revenue. Transportation fund revenue is expected to decline \$1,000 over the period, from \$24,000 to \$23,000, and drops to a low of \$19,000 in 1985 and 1986. The retirement fund revenues are expected to decline from \$40,000 to \$39,000 with a low of \$33,000. The other fund revenues remain at \$15,000 for 2015 but drop to a low of \$12,000 in 1985 and 1986.

TABLE 4.4.2.6-25

Net Fiscal Balance for Elementary District No. 29  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	Revenues	Expend- itures	Balance
1982	333	326	7
1983	339	332	7
1984	348	342	6
1985	369	361	8
1986	369	361	8
1987	379	371	8
1988	388	380	8
1989	392	385	7
1990	399	390	9
1995	408	401	7
2000	399	390	9
2005	408	401	7
2010	418	409	9
2015	449	439	10

Source: Mountain West Research-North, Inc., 1983.

TABLE 4.4.2.6-26

Revenue Forecasts for Elementary District No. 1  
 All Scenarios Except Cumulative  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	District Levy	General Fund					Trans- portation Total	Retire- ment Total	Other Total	Grand Total
		County Equal- ization	State Equal- ization	Cash Reappro- priation	Other	Total				
1982	12	14		30		56	37	8	4	105
1983	12	14		30		56	37	8	4	105
1984	14	16		33		63	42	8	4	117
1985	14	16		33		63	42	8	4	117
1986	14	16		33		63	42	8	4	117
1987	17	20		41		78	51	10	5	144
1988	17	20		41		78	51	10	5	144
1989	17	20		41		78	51	10	5	144
1990	17	20		41		78	51	10	5	144
1995	18	22		44		84	56	11	6	157
2000	15	18		37		70	47	9	5	131
2005	14	16		33		63	42	8	4	117
2010	15	18		37		70	47	9	5	131
2015	17	20		41		78	51	10	5	144

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

TABLE 4.4.2.6-27

Expenditure Forecasts for Elementary District No. 1  
 All Scenarios Except Cumulative  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund Expenditures	Transportation Fund Expenditures	Retirement Fund Expenditures	Other Expenditures	Total
1982	56	38	8	4	106
1983	56	38	8	4	106
1984	63	42	8	4	117
1985	63	42	8	4	117
1986	63	42	8	4	117
1987	77	51	10	5	143
1988	77	51	10	5	143
1989	77	51	10	5	143
1990	77	51	10	5	143
1995	84	56	11	6	157
2000	70	47	9	5	131
2005	63	42	8	4	117
2010	70	47	9	5	131
2015	77	51	10	5	143

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

TABLE 4.4.2.6-28

Net Fiscal Balance for Elementary District No. 1  
 All Scenarios Except Cumulative  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	Revenues	Expend- itures	Balance
1982	105	106	-1
1983	105	106	-1
1984	117	117	0
1985	117	117	0
1986	117	117	0
1987	144	143	1
1988	144	143	1
1989	144	143	1
1990	144	143	1
1995	157	157	0
2000	131	131	0
2005	117	117	0
2010	131	131	0
2015	144	143	1

Source: Mountain West Research-North, Inc., 1983.

TABLE 4.4.2.6-29

Revenue Forecasts for High School District No. 3  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund					Retire- ment Total	Other Total	Grand Total
	County Equal- ization	State Equal- ization	Cash Reappro- priation	Total	Trans- portation Total			
1982	172	39	183	394	24	40	15	473
1983	158	36	169	363	22	37	14	436
1984	148	33	157	338	20	35	13	406
1985	140	32	149	321	19	33	12	385
1986	140	32	149	321	19	33	12	385
1987	143	32	152	327	20	33	13	393
1988	143	32	152	327	20	33	13	393
1989	143	32	152	327	20	33	13	393
1990	143	32	152	327	20	33	13	393
1995	169	38	180	387	23	39	15	464
2000	169	38	180	387	23	39	15	464
2005	156	35	166	357	22	36	14	429
2010	156	35	166	357	22	36	14	429
2015	166	38	177	381	23	39	15	458

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

Expenditure forecast. The forecast district expenditures for the baseline scenario are presented in Table 4.4.2.6-30. Total district spending on noncapital items is expected to drop from \$472,000 in 1982 to \$458,000 in 2015. Spending would reach its low of \$384,000 in 1985 and 1986. General fund expenditures are expected to decline from \$393,000 in 1982 to \$381,000 in 2015, with a low of \$320,000 in 1985 and 1986. Retirement fund spending is forecast to drop from \$40,000 in 1982 to a low of \$33,000 in 1985 and 1986 before rebounding to \$39,000 by 2015. Transportation and other spending would demonstrate a decline from \$24,000 in 1982 to \$23,000 in 2015, with a low of \$19,000 in the mid-1980s. Other spending in 2015 would be identical to that of 1982, but drops to a low of \$12,000 in 1985 and 1986.

Fiscal balance. Table 4.4.2.6-31 presents the district's forecast net fiscal balance. The district is expected to have a balanced budget throughout the entire forecast period. The positive balance of \$1,000 in several years is primarily due to rounding of the expected revenues and expenditures.

Capital. The district would not require any additional capital facilities during the forecast period. It has no current outstanding debt.

#### Elementary District No. 2

Revenue forecast. Table 4.4.2.6-32 presents the forecast revenues for the district. Total district revenues are expected to increase from \$347,000 in the 1983 budget to \$417,000 in 2015, an increase of 20.2 percent. Revenues increase steadily over the period except for declines between 1990 and 2000. The general fund revenues are expected to increase from \$276,000 in 1982 to \$331,000 in 2015. They also show a drop between 1990 and 2000. The cash reappropriated and county equalization money sources would be the major contributors to the general fund, accounting for about 93 percent of the total general fund revenue. Transportation fund revenue is expected to show an overall gain of \$5,000 by 2015, with the retirement fund demonstrating a gain of \$7,000 by 2015. The other revenues are expected to rise from \$15,000 to \$18,000 over the period.

Expenditure forecast. Table 4.4.2.6-33 presents the forecast district expenditures for the baseline scenario. Total spending is forecast to increase from \$347,000 in 1982 to \$418,000 in 2015, an increase of over 20 percent. The spending is expected to decline during the 1990s. General fund spending is forecast to increase from \$276,000 in 1982 to \$333,000 in 2015. Transportation spending is forecast to increase a total of \$4,000 over the period, and retirement fund spending is expected to increase about \$7,000. Other expenditures are forecast to increase from \$15,000 to \$18,000 over the period.

Fiscal balance. Table 4.4.2.6-34 presents the forecast district net fiscal balance. The district is forecast to have a balanced budget throughout most of the forecast period. Where a deficit of \$1,000 or \$2,000 exists, it is primarily due to rounding of district revenues and expenditures and does not represent a true district deficit.

Capital. The district would not require any additional capital facilities during the forecast period. The district does not have any outstanding debt.



TABLE 4.4.2.6-30

Expenditure Forecasts for High School District No. 3  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund Expenditures	Transportation Fund Expenditures	Retirement Fund Expenditures	Other Expenditures	Total
1982	393	24	40	15	472
1983	363	22	37	14	436
1984	338	20	35	13	406
1985	320	19	33	12	384
1986	320	19	33	12	384
1987	326	20	33	13	392
1988	326	20	33	13	392
1989	326	20	33	13	392
1990	326	20	33	13	392
1995	387	23	39	15	464
2000	387	23	39	15	464
2005	357	22	36	14	429
2010	357	22	36	14	429
2015	381	23	39	15	458

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include capital or debt service.

TABLE 4.4.2.6-31

Net Fiscal Balance for High School District No. 3  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	Revenues	Expend- itures	Balance
1982	473	472	1
1983	436	436	0
1984	406	406	0
1985	385	384	1
1986	385	384	1
1987	393	392	1
1988	393	392	1
1989	393	392	1
1990	393	392	1
1995	464	464	0
2000	464	464	0
2005	429	429	0
2010	429	429	0
2015	458	458	0

Source: Mountain West Research-North, Inc., 1983.

TABLE 4.4.2.6-32

Revenue Forecasts for Elementary District No. 2  
All Scenarios  
Big Horn County  
1982-2015  
(1982 \$000)

Year	General Fund					Retire- ment Total	Other Total	Grand Total
	County Equal- ization	Cash Reappro- riation	Other	Total	Trans- portation Total			
1982	109	147	20	276	24	32	15	347
1983	111	149	20	280	24	33	15	352
1984	112	151	21	284	24	33	16	357
1985	116	156	21	293	25	34	16	368
1986	116	156	21	293	25	34	16	368
1987	117	158	22	297	26	35	16	374
1988	117	158	22	297	26	35	16	374
1989	123	165	23	309	27	36	17	389
1990	124	167	23	314	27	37	17	395
1995	123	165	23	311	27	36	17	391
2000	116	156	21	293	25	34	16	368
2005	117	158	22	297	26	35	16	374
2010	123	165	23	311	27	36	17	391
2015	131	176	24	331	29	39	18	417

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include major capital or debt service.

TABLE 4.4.2.6-33

Expenditure Forecasts for Elementary District No. 2  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	General Fund Expenditures	Transportation Fund Expenditures	Retirement Fund Expenditures	Other Expenditures	Total
1982	276	24	32	15	347
1983	281	24	33	15	353
1984	285	24	33	16	358
1985	294	25	34	16	369
1986	294	25	34	16	369
1987	298	25	35	16	374
1988	298	25	35	16	374
1989	311	27	36	17	391
1990	315	27	37	17	396
1995	311	27	36	17	391
2000	294	25	34	16	370
2005	298	25	35	16	374
2010	311	27	36	17	391
2015	333	28	39	18	418

Source: Mountain West Research-North, Inc., 1983.

Note: Does not include capital or debt service.

TABLE 4.4.2.6-34

Net Fiscal Balance for High School District No. 2  
 All Scenarios  
 Big Horn County  
 1982-2015  
 (1982 \$000)

Year	Revenues	Expend- itures	Balance
1982	347	347	0
1983	352	353	-1
1984	357	358	-1
1985	368	369	-1
1986	368	369	-1
1987	374	374	0
1988	374	374	0
1989	389	391	-2
1990	395	396	-1
1995	391	391	0
2000	368	370	0
2005	374	374	0
2010	391	391	0
2015	417	418	-1

Source: Mountain West Research-North, Inc., 1983.

#### 4.4.3 Hardin and Hardin Area

##### 4.4.3.1 Introduction

This section presents the baseline forecasts for Hardin and the Hardin area. Section 4.4.3.2 presents the population and economic forecasts for each area. Section 4.4.3.3 discusses social life in Hardin and the Hardin area under baseline conditions. The housing forecasts are presented in section 4.4.3.4. Facilities/services and fiscal forecasts are presented in sections 4.4.3.5 and 4.4.3.6, respectively.

##### 4.4.3.2 Population and Economy

As shown in Table 4.4.3.2-1, the Hardin's non-Indian baseline population is forecast to increase from 2,632 people in 1980 to 2,782 people in 1990 and 2,996 people in 2000. This steady growth is forecast to continue after 2000, and the 2015 forecast population of 3,404 represents a 29 percent increase over the 1980 population. Hardin's Crow Indian population is forecast to increase from 583 people in 1980 to 699 people in 1990 and 801 people in 2000. The Crow Indian population in 2015 is forecast to be 1,003 people, a 72 percent increase over 1980. The Hardin area is forecast to grow more slowly than the city of Hardin's baseline population. It is forecast to decrease over the 1980s and then increase to 1,159 people in 2015, an 18 percent increase over the 1980 population.

As shown in the baseline employment tables in Appendix B, Hardin's non-Indian employment by place of residence is forecast to decrease from 1,031 workers in 1980 to 1,009 workers in 1986 before increasing to 1,135 workers by 1990. After 1990, non-Indian employment is expected to increase steadily to 1,509 workers in 2015, a 46 percent increase over the 1980 level. Hardin's Crow Indian employment by place of residence is also forecast to decrease over the early 1980s but then increase steadily through 2015, when the forecast level of 658 workers would be 63 percent over the 1980 level of 403 workers. Baseline employment in the Hardin area is forecast to decrease from 578 people in 1980 to 572 people in 1984 and then increase steadily to 776 people in 2009, a 34 percent increase over the 1980 level.

##### 4.4.3.3 Social Life and Cultural Diversity

As discussed in Section 4.4.3.2, the population of Hardin and the surrounding area is forecast to increase from 4,193 to 4,459 people between 1980 and 1990 under baseline conditions and to reach 5,566 people in 2015. As shown in Table 4.1-2, the anticipated effects of the proposed coal development activities do not introduce any significant degree of uncertainty regarding area population, though considerable uncertainty is created about future business and employment conditions. Decision-makers and residents are therefore not faced with the potential of major population growth of the community.

Over the forecast period, Hardin is expected to continue as the center of county and city governmental activities, though the increasing proportion of community population that is Crow Indian may heighten the importance of, and ties to Crow Agency. Unless dramatic measures are taken by the Crow Tribe to develop trade and service sector establishments on the reservation, Hardin is also expected to remain the major business, professional, and service center of the county.

As discussed in Section 4.3.3, the major issues facing Hardin as a community over the forecast period will be negotiation of the political and social relationships between Crow Indians and anglo residents. Over the past several decades, the institutional structure and interests of the tribe have undergone serious examination by tribal members, and the Crow have recently given indications that they are prepared to take a more active role in county (and by analogy city) affairs. As anywhere when a firmly entrenched status quo is faced with pressure of change, tensions and conflict are likely to occur if the Crow undertake organized participation in county or city affairs. At this point, it is not possible to foresee the

TABLE 4.4.3.2-1  
Baseline Scenario Forecast  
Population  
Big Horn County Allocation Areas

Year	City of Hardin (non-Indian)	City of Hardin (Crow Indian)	Hardin Area (excluding city)	Decker/Spring Creek Area
1980	2,632	583	978	205
1981	2,646	596	977	207
1982	2,637	608	969	203
1983	2,635	621	962	196
1984	2,638	632	958	197
1985	2,656	644	956	197
1986	2,671	655	955	197
1987	2,679	666	954	197
1988	2,684	678	953	196
1989	2,690	689	950	196
1990	2,782	699	978	203
1991	2,790	708	977	203
1992	2,857	718	996	206
1993	2,867	728	994	206
1994	2,893	738	1,000	206
1995	2,917	748	1,005	206
1996	2,933	759	1,007	206
1997	2,943	769	1,007	205
1998	2,957	779	1,008	205
1999	2,977	790	1,011	205
2000	2,996	801	1,016	204
2005	3,084	864	1,050	197
2010	3,249	919	1,106	207
2015	3,404	1,003	1,159	217

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

outcome of such a transition in roles, or even to state with confidence that significant force for change will be applied. However, residents of the community are alert to and sensitive about the potential for significant change in the social organization of the community.

To a great extent, the changes in social organization that occur in Hardin over the forecast period under baseline conditions will center on the position and actions taken by the Crow Tribe and its people. The magnitude of population change forecast is small, and would by itself be insufficient to require significant modification of existing patterns of interaction and organization. However, the steadily increasing proportion of Crow Indian residents of the community and the changing perceptions of appropriate Crow participation in the social and political realms are likely to cause significant readjustment of the diversity of political positions and methods in the community over the long run. This could result in significant, if gradual, change in the stratification system of the community (and the county). During this transition, community-wide integration will probably be reduced as residents orient themselves into opposing factions.

The effectiveness and objectives of Crow and Anglo leaders during this period will substantially affect the long-term consequences of this transition. If the tensions, antagonisms, and conflict are contained and managed, with leaders on both sides striving to establish mechanisms for coordination and cooperation, the long-term effects may be very positive, resulting in a community with a more open stratification system and enhanced integration. These outcomes are highly dependent upon individual actions; they are not possible to forecast accurately over the long-time interval of the study.

#### 4.4.3.4 Housing

As shown in Table 4.4.3.4-1, non-Indian baseline housing demand in Hardin is forecast to grow from the 1980 inventory of 1,226 units to 1,463 units in 2000, an increase of 19 percent. After 2000, housing demand is expected to increase to 1,586 units in 2010 and 1,662 units in 2015. Similar trends for the Crow housing in Hardin and for the Hardin north area are also reflected in the table.

#### 4.4.3.5 Facilities and Services

##### City of Hardin

Baseline population (including both non-Indian and Indian) projections for Hardin show a steady increase from 3,245 people in 1982 to 4,593 people in 2015, an increase of 1,348 people, or 41.5 percent. The following government services are addressed in this section: general government, engineering and public works (including water and sewer), garbage collection, police, and fire.

General government. In 1981, the town constructed a new city hall/shop building of 7,778 sq. ft. The office portion of the building contains 2,498 sq. ft.; the shop portion contains 5,280 sq. ft. Two staff members handle all general government functions.

Existing general government space translates to a standard of 769 sq. ft. of area per 1,000 population, very close to the CITF standard of 800 sq. ft. per 1,000 population. Applying the current standard to the projected baseline population results in a demand for 3,532 sq. ft. of space by year 2015. The present full-time general government staff adequately serves the existing population; one additional full-time staff member would be needed by year 2015.



TABLE 4.4.3.4-1  
Baseline Scenario Forecast  
Housing Demand  
Big Horn County Allocation Areas  
(Housing Units)

Year	City of Hardin (non-Indian)	City of Hardin (Crow Indian)	Hardin Area (excluding city)	Decker/Spring Creek Area
1980	1,226	146	364	96
1981	1,224	151	365	97
1982	1,212	156	363	96
1983	1,211	163	364	95
1984	1,211	169	365	96
1985	1,218	175	366	97
1986	1,225	181	368	98
1987	1,230	187	369	99
1988	1,239	194	372	100
1989	1,244	199	372	100
1990	1,292	204	385	104
1991	1,298	209	385	105
1992	1,331	214	393	107
1993	1,343	221	394	107
1994	1,356	225	397	108
1995	1,377	230	401	109
1996	1,391	235	404	110
1997	1,405	241	406	110
1998	1,426	247	411	111
1999	1,442	253	413	112
2000	1,463	258	418	113
2005	1,506	278	432	109
2010	1,586	296	455	114
2015	1,662	323	476	120

Source: Mountain West Research-North, Inc., 1982.

Engineering and public works. Located in the new city hall/shop building, the engineer and public works department is responsible for building code inspections, street maintenance, and water and sewage treatment facilities. The department has 4.25 full-time employees who are supplemented by 2 to 3 summer employees.

Using the present standard of 1.6 full-time employees per 1,000 population, staffing under the baseline scenario would increase to seven full-time employees in the year 2015. This staff should be sufficient to maintain the current levels of service in building inspections and street maintenance. Office and storage space might have to be increased to accommodate the new staff and any additional equipment. Using the current standard of 1,627 sq. ft. of office and shop space per 1,000 population, space requirements would total 7,500 sq. ft. in the year 2015.

The town's water system has been renovated over the past twenty years. The treatment facility has a capacity of 4 million gallons per day. Using the local planning standard of 150 gallons of treated water per capita per day, the system is adequate for a population of 27,000. Water storage facilities are sufficient for a population of about 6,500. Neither capacity would be exceeded by projected population in the baseline case. Water charges cover operating and maintenance expenditures. However, there are no plant investment fees to defray the costs of any new facilities that may be needed or for depreciation of existing facilities.

The town's sewer system is new and consists of oxidation ditches and an activated sludge plant. Local sources indicated that the system's 1-million-gallon capacity would be adequate for a population of 6,000. Monthly fees cover all operating and maintenance expenditures, as well as contributing to the repayment of the city hall revenue bonds. No expansion of the system would be required in the baseline projections.

Sanitation. The town is responsible for garbage collection, using a crew of three on two trucks. Customer fees are set to cover operating and maintenance costs, as well as a capital replacement fund of \$10,000 per year. If current standards are applied to the projected increased population, one additional employee would be needed by 2015. The town owns the landfill site that is operated by the county.

Parks and recreation. The town currently has 5 acres of developed park land and 2.25 acres that are undeveloped. This yields a standard of 1.5 acres of developed parks per 1,000 population. Using this standard, 6.9 acres of developed parks would be needed by year 2015. The additional acreage is already owned by the town. Recreation programs are run by the school district.

Police and fire departments. Police services are provided by the county sheriff's department.

Fire protection is handled by a twenty-member volunteer department. A new truck will be purchased in 1983 (partially with a grant from the coal board) giving the department two relatively new trucks. The projected growth in the baseline case is not sufficient to require a paid fire staff or additional equipment.

#### 4.4.3.6 Fiscal

As shown in Table 4.4.3.6-1, the town is projected to have a cumulative deficit of about \$11 million in 2005 under baseline conditions. The deficit would be between \$450,000 and \$525,000 for each of the projection years. The reason for this situation is the dependence on budget carryovers to finance services in the 1982 budget. Since carryovers are not a recurring revenue source, they were not projected

Fiscal Summary for City of Hardin  
Baseline Scenario  
1982-2015  
(1982 \$000)

FISCAL SUMMARY	1982	1983	1984	1985	1986	1987	1988	1989	1990
REVENUES TOTAL	878	920	924	932	939	944	948	953	990
EXPENDITURES O & M	1279	1311	1318	1329	1340	1347	1354	1361	1402
CAPITAL	10	35	28	10	10	10	10	43	10
DEBT PAYMENT	49	49	49	49	49	49	49	40	40
TOTAL	1338	1395	1394	1388	1399	1406	1413	1444	1452
FISCAL BALANCE BASELINE ANNUAL		-475	-470	-456	-450	-463	-465	-491	-472
CUMULATIVE		-475	-945	-1402	-1862	-2324	-2789	-3280	-3752
FISCAL BALANCE NO ACTION ANNUAL		-475	-470	-456	-450	-463	-465	-491	-472
CUMULATIVE		-475	-945	-1402	-1862	-2324	-2789	-3280	-3752
	1995	2000	2005	2010	2015				
REVENUES TOTAL	1029	1064	1118	1174	1208	Notes: a) NF means not forecast. Because of limitations in the size of the computer model used to project population, it was not possible to make annual projections through 2015. Annual projections were made through 2005 and also for the years 2010 and 2015. Therefore, it was not possible to compute cumulative fiscal results for years following 2005. Details may not sum due to rounding.			
EXPENDITURES O & M	1476	1529	1612	1687	1710				
CAPITAL	10	31	22	10	10				
DEBT PAYMENT									
TOTAL	1486	1560	1633	1697	1720				
FISCAL BALANCE BASELINE ANNUAL	-457	-496	-515	-523	-512				
CUMULATIVE	-6125	-8712	-10980						
FISCAL BALANCE NO ACTION ANNUAL	-457	-496	-515	-523	-512				
CUMULATIVE	-6125	-8712	-10980						

into the future. Only those revenues expected to be received regularly were projected. The result is that the expenditures necessary to maintain current levels of service exceed recurring revenues by \$460,000 in 1982. Since this trend was then projected into the future, both yearly and cumulative deficits were forecast over the study period. Inasmuch as Hardin has not experienced significant financial problems in the past, projected deficits may be a manifestation of this methodology and of the tendency for current year budgets to estimate expenditures high and revenues low.

#### 4.4.4 Decker Area

##### 4.4.4.1 Introduction

This section presents the baseline forecasts for the Decker area. Section 4.4.4.2 presents the population and economic baseline forecasts for the area. Section 4.4.4.3 discusses social life under the baseline scenario in the Decker area. The housing forecasts are presented in Section 4.4.4.4. Facilities, services baseline forecasts are presented in sections 4.4.4.5 and 4.4.4.6, respectively.

##### 4.4.4.2 Population and Economy

As shown in Table 4.4.3.2-1, the Decker/Spring Creek area's baseline population is forecast to remain relatively stable at 200 persons through 2005 and then grow to 217 persons by 2015. Similarly, total baseline employment is forecast to increase from 187 workers in 1980 to about 200 workers by 1986 and then remain relatively stable for the remainder of the forecast period.

##### 4.4.4.3 Social Life and Cultural Diversity

###### Background

Population projections in small communities are meaningless unless realistic parameters governing potential growth can be delineated. For example, projections made for the Decker area less than ten years ago have proven to be of no utility in southern Rosebud and Big Horn counties. A single housing development in any of the communities could immediately multiply existing populations severalfold. In so doing, they would be likely to impose a new form or structure upon existing open country ranch communities. While such growth (and even the establishment of new communities) is feasible, precisely how and where it might occur is unknown if, indeed, it would occur at all over the baseline forecast period.

The failure of the proposed Spring Creek development is one recent example of the speculative nature of forecasts of population growth in this area. If mining and attendant population growth proceed as projected in Section 4.4.4.2, then Wyoming will continue to accommodate population growth while Montana continues as the site of mining. Recent experience indicates that growth will concentrate in the Sheridan area and that distance and lack of amenities and housing will continue to buffer the outlying communities. As seen in the forecasts of population for the Decker area, little change is anticipated over the entire period. Population is forecast to decline slightly in 1983 and to remain marginally below 1980-1982 levels until 1990, after which it increases slowly to slightly above 1982 levels. Given the forecast degree of population and economic change, the structure of the area economy is not anticipated to undergo appreciable alteration over the forecast period.

## Social organization

Diversity and complexity. The community's prolonged experience with declining population is expected to cease after 1983 as the population stabilizes. As a result, the diversity and complexity of social systems in the area are expected to remain essentially unchanged unless an unforeseen influx of residents occurs. During this period, the skeleton of the Decker community will probably continue much as it currently exists because of the infrastructure of services and activities located there. Given the forecast pattern of stable and nonmigrating residents, it is likely that the community will become more integrated than it currently is. Otherwise, it is likely that new residents will form their own interaction systems, particularly with townspeople with whom they are acquainted and with whom they work. Long-term ranchers will probably become more isolated, though they have and will continue to maintain linkages with others in adjacent communities, as well as with longstanding friends and relatives in the Sheridan area.

If a significant number of nonranching persons were to move into Decker or its adjacent communities (Kirby, Birney, etc.), local, political, social schisms might occur. If their numbers increase, new residents would be likely to organize and assume control of the school board, the only genuinely local governmental and leadership body in the community. However, as noted, there is little reason to expect such a change in population given the baseline population and employment forecasts.

Stratification (distribution of resources and status). The few miners who have moved into the rural Decker area during the last ten years constitute a local manifestation of the decades-old stratification system that evolved in the greater Sheridan area between ranchers and miners. Miners are not regarded as social equals by ranchers. If the resident mining population did increase, these differential statuses would be likely to become more rigid. Complicating the stratification would be the younger age of the newcomers/miners. Over the longer term, the social esteem given to the newcomers would be likely to rise as they became active and gradually demonstrated their effectiveness in local affairs. Proportionately, nonetheless, ranchers would remain politically and socially more influential than newcomers in the Decker area throughout the forecast period. Once again, however, an increase in miners is highly speculative and unlikely because past trends do not indicate that such an influx is likely to occur.

Outside linkages. Given the current community, ranchers will continue their traditional linkages with friends, former neighbors, and relatives in the greater Sheridan area. Mine-affiliated residents would draw heavily upon these same types of social resources, though with a distinctly different set of people unless they are of local agricultural origin. The absence of overlapping social friendship and recreational networks -- a type of nonintegration -- would provide further impetus for additional local instability. Lacking close, personal, local networks, newcomers would be drawn back toward town, further fulfilling the prophecy of ranch people that miners are not committed to remaining and participating in the rural community. This circular and self-fulfilling process is unlikely to be modified unless a "critical mass" of nonagricultural residents emerge that may establish a base for local integration. In this case, two different clusters of local groupings and activities are likely to develop, whose relationship will depend heavily on historical circumstance and the characteristics of the groups' leadership.

Economic linkages in the Decker and surrounding agricultural communities are and will remain directly affiliated with place in terms of employment. For the last decade, in fact, Decker has been the locus of employment for many nonresident workers. With the exception of most service personnel, whose members have increased during the past five years but now are unlikely to increase for several years, the acceptability of the area to the workers as a place of residence has historically been low, an attribute that is unlikely to improve in the forecast period.

Significant economic development, exclusive of mining and related activities such as railroad and essential utility development, is unlikely to occur in any of the rural communities in the Decker area over the forecast period. Most needs provided by the private sector would continue to be sought in Sheridan. Less frequently, but for more expensive and unusual services and goods, residents would still travel to Billings. Public sector relationships will probably continue to be dominated by the county seats in Hardin and Forsyth, though the linkages are not likely to increase beyond their current levels unless unforeseen growth occurs in the rural communities.

Integration (coordination and cooperation). Integration in the Decker area communities is currently at a low ebb. Important and intense changes have occurred in the community in the recent past that have reduced the community's ability to formulate a coherent and forceful response. It is possible that the effects of these changes -- in terms of their adverse effect on community integration -- will persist, and that the community will remain at its current low level of integration well into the future. If the population fails to stabilize, if area residents are forced to maintain and depend on outside linkages, and if the long-standing biases toward mining persist, then tightly re-established integration will not occur, and the community of Decker will be reduced to a small number of geographically isolated residents.

Integration beyond the affected perimeter of Decker is expected to remain about as it has been. It may be reduced somewhat as technology obviates the needs for cooperation and personal contact and permits further consolidation of land, factors that are largely independent of any proposed mining and are difficult to forecast. Continued mining at baseline levels may reduce integration slightly as the nuisances created by greater populations seeking access to rural areas create further alienation among agricultural residents. Economic and political integration do not appear likely to undergo significant change during the forecast period.

Perceptions of the community. Residents of the Decker area generally appear to be resigned to future widespread coal development in the area. They have not liked mining, its physical consequences, or its social ramifications, but most perceive it as necessary and inevitable. They already have experienced a loss of community; most would probably feel very favorably about a resurgence of a dynamic and vigorous community life. The surrounding, peripheral, rural communities of Kirby, Birney, and eastern Otter Creek like coal mining no better than the residents of Decker but are less personally or structurally affected. They continue to perceive their communities as viable, albeit nostalgic vestiges in an industrial world. They also recognize how fragile small, informal communities built upon personal contact and trusting recognition are. Yet they seem resigned to retain their participation in these community settings for as long as they can. Even most ranchers who have leased land to energy companies or who have intellectually supported coal development dislike its effects upon local community structure. These perceptions are unlikely to change, particularly given the probable negative consequences to their sense of community, should additional development occur.

The baseline forecast shows no factors that would indicate dramatic alteration of the existing well-being of area residents, particularly in the areas of material well-being or "social" behaviors.

#### 4.4.4.4 Housing

Table 4.4.3.4-1 presents the baseline housing demand forecast for the Decker area. As shown, demand is forecast to increase steadily from 96 units in 1980 to 113 units in 2000, an increase of 18 percent. After 2000, demand is forecast to increase at about the same rate, reaching 120 units by 2015.

Under baseline conditions, it does not appear that housing demand in the Decker area would be large enough to trigger development of Spring Creek, an approved subdivision described in Section 3.3.4.4. However, if for some reason Spring Creek were developed, it would shift some housing demand away from other areas toward Spring Creek, increase baseline demand for housing in the Decker/Spring Creek area, and increase the area population.

#### 4.4.4.5 Facilities/Services

There are no local jurisdictional units in the Decker/Spring Creek area. Consequently, no discussion of facilities/services conditions is appropriate for this geographic area. Public elementary and secondary schools are discussed at the county level.

#### 4.4.4.6 Fiscal

There are no local jurisdictional units in the Decker/Spring Creek area. Consequently, no discussion of fiscal conditions is appropriate for this geographic area. Public elementary and secondary schools are discussed at the county level.

### 4.5 Crow Reservation and Communities

#### 4.5.1 Introduction

This section presents the baseline forecasts for the Crow Indian Reservation and its communities. The section is comprised of four subsections, each of which focuses on a particular geographic area of the reservation. Section 4.5.2 presents population, economic, housing, facilities/services, and fiscal forecasts for the reservation as a whole. Sections 4.5.3 and 4.5.4 present the same set of forecasts for Crow Agency and the Northeast area and for Lodge Grass and the southeast area, respectively. Because the proposed mines are expected to have a less significant impact on the central and west areas, sections 4.5.5 and 4.5.6 focus on the population and economic baseline forecasts in these areas, but do not describe the housing, facilities/services, or fiscal forecasts unless warranted by the magnitude of potential impacts. The discussion social and life and cultural diversity under baseline conditions and of off-reservation Crow Indians (4.5.7) are addressed in a separate document (4ITS 1983).

#### 4.5.2 Crow Reservation

##### 4.5.2.1 Introduction

This section presents the baseline forecast for the Crow Reservation as a whole. Section 4.5.2.2 presents the baseline population and economic forecasts. Section 4.5.2.3 discusses social life and cultural diversity on the Crow Reservation under baseline conditions. Baseline housing forecasts are presented in Section 4.5.2.4. Facilities/services and fiscal forecasts are presented in sections 4.5.2.5 and 4.5.2.6, respectively.

##### 4.5.2.2 Population and Economy

This section discusses the baseline population and employment forecasts for the Crow Indian population of Big Horn County, including both the Crow Reservation and the city of Hardin. The Crow Indian and non-Indian population forecasts for the reservation and its subareas are presented in tables 4.5.2.2-1 and

TABLE 4.5.2.2-1  
Baseline Scenario Forecast  
Crow Indian Population  
Crow Reservation and Allocation Areas

Year	Crow Reservation	Crow Agency and Northeast Area	Lodge Grass and Southeast Area	Central Area	West Area
1980	4,792	2,144	1,827	362	459
1981	4,895	2,189	1,865	371	470
1982	4,996	2,235	1,902	379	480
1983	5,102	2,282	1,941	388	491
1984	5,199	2,326	1,977	395	501
1985	5,300	2,371	2,015	403	511
1986	5,392	2,413	2,050	409	520
1987	5,486	2,456	2,085	416	529
1988	5,579	2,498	2,120	423	538
1989	5,669	2,539	2,155	429	546
1990	5,753	2,577	2,188	434	554
1991	5,835	2,615	2,220	439	561
1992	5,919	2,654	2,253	444	568
1993	5,999	2,689	2,285	449	576
1994	6,079	2,726	2,316	454	583
1995	6,162	2,763	2,350	459	590
1996	6,251	2,804	2,385	464	598
1997	6,339	2,845	2,421	468	605
1998	6,429	2,886	2,457	473	612
1999	6,520	2,928	2,494	478	620
2000	6,611	2,970	2,531	483	627
2005	6,992	3,143	2,671	471	707
2010	7,439	3,343	2,842	502	752
2015	8,116	3,648	3,100	547	821

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.



4.5.2.2-2. More detailed information on the population forecasts for the subcounty areas within the reservation is presented in sections 4.5.3 through 4.5.6. Information on the baseline forecast for the Crow population of Hardin was presented in Section 4.4.3.2.

As shown in Table 4.5.2.2-3, the Crow Indian population of Big Horn County is forecast to grow from 5,378 people in 1980 to 6,454 people in 1990, an increase of 20 percent. The population is forecast to grow by another 15 percent during the 1990s and by 13 percent between 2000 and 2010. The 2015 population of 9,119 people would increase 70 percent over the 1980 population. Virtually all of the population change can be attributed to natural increase, as very little migration is forecast to occur.

As shown in Table 4.5.2.2-4, the Crow Indian labor force is forecast to grow at a slightly faster rate than population growth, causing the labor force participation rate to grow from 38.8 percent in 1980 to 43.8 percent by 2015. Crow Indian employment is forecast to grow more slowly than the labor force at first, causing the unemployment rate to increase from 36.9 percent in 1980 to 43.4 percent in 1990. However, employment is forecast to grow faster than the labor force between 1990 and 2015, causing the unemployment rate to drop back down to 37.8 percent in 2015.

#### 4.5.2.3 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (AITS 1983).

#### 4.5.2.4 Housing

As shown in Table 4.5.2.4-1, baseline housing demand for Crow Indians on the Crow Reservation is forecast to increase from the 1980 level of 1,117 units to 1,833 units in 2000, and 2,247 units in 2015. This large increase is due not only to population growth but also to the Crow Indians' desire to reduce the overcrowding that currently exists on the reservation. As shown in the table, a 40-unit supply response limit would result in small housing deficits in intermittent years through 2015. The ability of housing suppliers to produce 40 units per year will, of course, depend on builders' capacities and on continued government funding for Crow housing.

#### 4.5.2.5 Facilities and Services

##### Overview

As the Indian population increases for Big Horn County and the Crow Indian Reservation in the baseline scenario, the requirements for personnel, capital facilities, and equipment experience moderate or severe increases for the mid-term (1995) and long-term (2015) periods. For the Crow Indian Reservation, the Indian population increases from approximately 5,000 in 1982 to 6,200 (24 percent) in the mid-term and 8,000 (60 percent) in the long-term projections (see Table 4.5.2.5-1).<sup>1</sup>

General government, which represents the requirements of the Crow Indian tribal government, has an adequate number of personnel to meet forecast needs, while increased personnel are required by the police

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<sup>1</sup>The Indian population of Big Horn County is the population base for the projection of requirements of the various health-related and recreation facilities and services, while the Indian population of the Crow Indian Reservation is the population base for the projection of requirements for the general government and police facilities and services. The Northern Cheyenne population in Big Horn and Rosebud counties are taken into consideration for analysis of hospital beds since they are within the service area of the IHS hospital serving the Crow.

TABLE 4.5.2.2-2  
Baseline Scenario Forecast  
Non-Indian Population  
Crow Reservation Allocation Areas

Year	Crow Reservation	Crow Agency and Northeast Area	Lodge Grass and Southeast Area	Central Area	West Area
1980	1,966	420	820	596	130
1981	1,966	419	818	600	129
1982	1,956	419	812	597	128
1983	1,948	419	807	596	126
1984	1,943	418	804	595	126
1985	1,941	418	801	597	125
1986	1,940	418	799	599	124
1987	1,939	418	797	601	123
1988	1,937	418	794	602	123
1989	1,933	417	791	603	122
1990	1,966	419	800	622	125
1991	1,962	420	796	622	124
1992	1,979	419	800	634	126
1993	1,975	419	797	654	125
1994	1,974	419	795	635	125
1995	1,972	418	793	636	125
1996	1,970	419	791	635	125
1997	1,963	417	787	635	124
1998	1,959	415	785	635	124
1999	1,955	415	782	634	124
2000	1,952	417	779	632	124
2005	2,034	459	788	656	131
2010	2,143	484	830	691	138
2015	2,245	507	869	724	145

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 4.5.2.2-3  
Baseline Scenario Forecast  
Crow Indian Population  
Big Horn County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	5376	0	0	0	0	0
1981	5492	163	50	1	0	114
1982	5606	164	52	1	0	113
1983	5724	170	54	1	0	117
1984	5833	164	56	1	0	109
1985	5944	166	57	1	0	111
1986	6049	161	58	1	0	104
1987	6154	163	59	1	0	104
1988	6256	164	61	1	0	104
1989	6359	163	63	1	0	100
1990	6454	158	65	1	0	95
1991	6546	156	66	1	0	91
1992	6638	158	67	1	0	92
1993	6728	157	69	1	0	90
1994	6818	159	72	1	0	89
1995	6912	165	73	1	0	94
2000	7414	181	81	1	0	101
2005	7856	181	90	1	0	92
2010	8358	182	95	1	0	110
2015	9119	210	104	1	0	761

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding. All values except total population represent annual changes.

TABLE 4.5.2.2-4

Baseline Scenario Forecast  
Crow Indian Population, Labor Force, and Employment  
Crow Reservation and Hardin

Year	Population	Labor Force	Labor Force Participation Rate (percent)	Employment	Unemployment Rate (percent)
1980	5,378	2,089	38.8	1,319	36.9
1985	5,944	2,419	40.7	1,315	45.6
1990	6,454	2,675	41.4	1,515	43.4
1995	6,912	2,993	43.3	1,713	42.8
2000	7,414	3,239	43.7	1,885	41.8
2005	7,856	3,499	44.5	2,086	40.4
2010	8,358	3,657	43.8	2,274	37.8
2015	9,119	3,847	42.1	2,517	34.6

Source: Mountain West Research-North, Inc., 1982.

TABLE 4.5.2.4-1  
Baseline Scenario Forecast  
Housing Unit Demand/Supply  
Crow Reservation  
(for Crow Indian population only)

Year	Total Demand	Incremental Demand Over Previous Year	Local Supply Response (Limit = 40)	Cumulative (Deficit) Surplus
1980	1,117			
1981	1,148	31	31	0
1982	1,179	31	31	0
1983	1,222	37	37	0
1984	1,259	37	37	0
1985	1,293	34	34	0
1986	1,334	41	40	(1)
1987	1,369	35	36	0
1988	1,414	46	40	(6)
1989	1,449	35	40	(1)
1990	1,478	29	30	0
1991	1,516	38	38	0
1992	1,548	32	32	0
1993	1,588	40	40	0
1994	1,616	28	28	0
1995	1,643	27	27	0
1996	1,674	31	31	0
1997	1,716	42	40	(2)
1998	1,760	44	40	(6)
1999	1,797	37	40	(3)
2000	1,831	34	37	0
2005	1,936	103 for 5 yrs	103 for 5 yrs	0
2010	2,060	124 for 5 yrs	124 for 5 yrs	0
2015	2,247	187 for 5 yrs	187 for 5 yrs	0

Source: Mountain West Research-North, Inc., 1982.

TABLE 4.5.2.5-1

Population for Selected Jurisdictions by Selected Years  
Baseline Scenario  
1982, 1995, 2015

Jurisdictions and Scenarios	Existing (1982)	Population		Percent Change from Existing (1982)	
		Mid- Term (1995)	Long- Term (2015)	Mid- Term (1995)	Long- Term (2015)
Crow Indian Reservation (Indian)	5,000	6,200	8,000	24	60
Big Horn County (Crow & Northern Cheyenne)	6,500	8,000	10,400	23	60
Crow Agency (Unincorporated) (Indian and non-Indian)	520	640	820	23	58
City of Lodge Grass (Indian and non-Indian)	920	1,100	1,400	20	52
WyoLa (Unincorporated) (Indian and non-Indian)	90	110	140	22	56
St. Xavier (Unincorporated) (Indian and non-Indian)	150	160	180	7	20
Ft. Smith (Unincorporated) (Indian and non-Indian)	180	200	230	11	28
Pryor (Unincorporated)	230	270	330	17	43

TABLE 4.5.2.5-1 (cont.)

Population for Selected Jurisdictions by Selected Years  
Baseline Scenario  
1982, 1995, 2015

Jurisdictions and Scenarios	Existing (1982)	Population		Percent Change from Existing (1982)	
		Mid- Term (1995)	Long- Term (2015)	Mid- Term (1995)	Long- Term (2015)

Source: Mountain West Research-North, Inc., 1982.

Note: The information for the Crow Indian Reservation as a jurisdiction represents the Indian population. The information for the municipal and unincorporated jurisdictions represents the total (i.e., Indian and non-Indian) populations. Figures for population are rounded to the nearest one hundred, except for the unincorporated jurisdictions of Wyola, St. Xavier, Ft. Smith, and Pryor, for which figures for populations are rounded to the nearest ten. Figures for percentage of change in population are rounded to the nearest percent.

Projections for population in specific jurisdictions are either identical or have minimal, insignificant variation among scenarios.

Refer to textual sections of specific scenarios for discussion pertaining to variations in the projections of population between the baseline scenario and the "with-project" scenarios.

The patterns of annual change in population represent no significant "peak year" trends of distribution. Refer to Section 2.3.4 for discussion about the analysis of changes in population for selected, relevant periods of time.

and various health-related services in both the mid- and long-term. Existing capital facilities for general government and police are adequate for baseline conditions throughout the study period, but the health-related facilities and services would experience demands of sufficient magnitude to require additional capital facilities and equipment in the mid-term and long-term. Requirements for recreation are not forecast for the Crow Indian Reservation (see Section 3.4.2.5).

The rate of increase for personnel is forecast to be greater between 1982 and 1995 than between 1995 and 2015 for all facilities and services except social services and mental health, both of which have relatively constant rates of growth over the entire period. Increases in demand for capital facilities and equipment associated with hospital and health services would be greater between 1995 and 2015 than in the earlier period. The opposite is true for capital facilities associated with community health; rates of increase are greater for the mid-term projections than for the long-term projections. The rates of increase for capital facilities associated with social services and mental health are expected to be relatively constant throughout the study period.

The greatest increase in demand for personnel, capital facilities, and equipment is expected to occur in the hospital and health services, social services, and community health. For the long-term baseline projections, the total number of physicians needed increases from five to twenty-one (320 percent), while the number of dentists needed increases from two to five (150 percent). The combined number of personnel for social services, mental health, and community health would increase from six to fifteen (150 percent) during the study period.

The following sections present detailed information about the requirements for personnel, capital facilities, and equipment on the Crow Indian Reservation. The information is presented in terms of impacts measurable in the mid-term and long-term periods of projections.

#### General government

The existing number of positions for professional staff, (twenty-five positions) would be adequate for both mid-term and long-term needs. The amount of office space (sq. ft.) available in the Crow Indian Administrative Building, the Sun Lodge complex, and the remodeled Heritage Center would also be adequate for mid-term and long-term needs. (See Table 4.5.2.5-2.)

#### Police

The Crow Indian Tribal/Bureau of Indian Affairs Police Department would have an adequate number of sworn officers (fifteen) for mid-term needs. By 2015, one additional sworn officer would be needed, an increase of 7 percent. The existing law enforcement office and detention facility, located at Crow Agency, would have adequate space for mid-term and long-term needs. (Office space requirements in the more remote areas of the Crow Indian Reservation have not been forecast because their development is significantly dependent upon local decisions which cannot be forecast with any confidence.) The requirement for police vehicles would increase from seven to eight vehicles during the study period. (See Table 4.5.2.5-2.)

#### Hospital and health services

The requirements for personnel, capital facilities, and equipment associated with hospital and health services would increase in both the mid-term and long-term. By 1995, the demand for physicians would increase from five in 1982 to sixteen (220 percent). Between 1995 and 2015, five additional physicians



TABLE 4.5.2.5-2

Baseline Scenario for Facilities/Services Requirements for Selected Years  
 Grow Indian Reservation  
 Baseline and "With-Project" Scenarios  
 1982, 1995, 2015

Facilities/Services	Total Requirements			Increase Over Existing (1982)			Percent Change From Existing		
	Existing (1982)	Mid- Term (1995)	Long Term (2015)	Mid- Term (1995)	Long- Term (2015)		Mid- Term (1995)	Long- Term (2015)	
<b>PERSONNEL</b>									
General Government									
Professional Staff	25	19	24	--	--		--	--	
Police									
Sworn Officers	15	12	16	--	1		--	7	
Hospital and Health Services <sup>b</sup>									
Physicians	5	16	21	11	16		220	320	
Dentists	2	4	5	2	3		100	150	
Social Services									
Medical Social Workers	1	2	3	1	2		100	200	
Mental Health									
Mental Health Specialists	1	2	3	1	2		100	200	
Community Health									
Community Health Nurses	4	7	9	3	5		75	125	
MAJOR CAPITAL FACILITIES/SERVICES									
General Government <sup>a</sup>									
Space (sq. ft.)	6,000	4,000	5,200	--	--		--	--	
Police									
Space (sq. ft.) <sup>a</sup>	3,600	2,500	3,200	--	--		--	--	
Police Vehicles	7	7	8	--	1		--	14	
Hospital and Health Services <sup>b</sup>									
Hospital Beds	34	42	42	--	8		--	24	
Buildings	0	2	3	2	3		n.d. <sup>c</sup>	n.d.	

TABLE 4.5.2.5-2 (cont.)

Baseline Scenario for Facilities/Services Requirements for Selected Years  
Crow Indian Reservation  
Baseline and "With-Project" Scenarios  
1982, 1995, 2015

Facilities/Services	Total Requirements			Increase Over Existing (1982)			Percent Change From Existing		
	Existing (1982)	Mid- Term (1995)	Long- Term (2015)	Mid- Term (1995)	Long- Term (2015)		Mid- Term (1995)	Long- Term (2015)	
Social Services <sup>a</sup>									
Space (sq. ft.)	200	800	1,000	600	800		400	500	
Mental Health <sup>a</sup>									
Space (sq. ft.)	200	800	1,000	600	800		400	500	
Community Health <sup>a</sup>									
Space (sq. ft.)	200	800	1,000	600	800		400	500	
Recreation <sup>d</sup>									
Parkland (acres)	na	NF	NF	NF	NF		NF	NF	

Source: Mountain West Research-North, Inc., 1982

Note: na = not applicable, NF = not forecast.

The "with-project" scenarios include: Young's Creek, CX level 1, CX level 2, Wolf Mountain, cumulative.

The projections for the baseline scenario are also appropriate for all with-project scenarios. Projections for facilities/services requirements in specific jurisdictions are either identical, or have minimal, insignificant variation among scenarios. Levels of variation in projections for the facilities/services requirements among scenarios do not create diverse, incremental requirements for personnel or capital facilities and equipment. The variations in the projections between the baseline scenario and the with-project scenarios that do occur are discussed in the text.

Changes in facilities/services requirements show no significant "peak year" trends and are therefore addressed in terms of "mid-term" (1995) and "long-term" (2015) to provide a clearer perspective on the magnitude and rate of change required. Quantitative information about space (sq. ft.) is unavailable. Capacity is assumed to be consistent with appropriate standards.

The IHS hospital serves the Indian populations in Rosebud and Big Horn counties. The analyses presented in this report for hospital and health services, social services, mental health, and community health are based upon the Indian population of Big Horn County. Refer to Section 3.3.2.4 discussion about health services for the non-Indian population throughout Big Horn County. If the Indian population in Rosebud County is also considered, mid-term estimates would be increased by 40.5 percent and long-term estimates would be increased by 31.0 percent.

<sup>a</sup>A base for calculation of percentage change is not available because there are currently no ambulances stationed at the Crow Indian Reservation. Refer to Section 3.3.2.4 for discussion about emergency services in Big Horn County.

<sup>d</sup>The total number of rural recreation areas for tribal lands is unknown, and standards for rural recreation areas on reservation lands are not available. Increases in recreation areas are forecast in the text.

would be needed, an increase of sixteen (320 percent) over 1982 levels. The number of dentists would need to be increased from two in 1982 to four (100 percent) in 1995 and to five in 2015, an overall increase of 150 percent. (See Table 4.5.2.5-2.)

The existing number of thirty-four hospital beds would be adequate to serve the mid-term needs of the Indian population in Big Horn County.<sup>1</sup> In 2015, forty-two hospital beds would be needed for this population, reflecting an increase of 25 percent over the entire period. In 1982, no ambulances were stationed on the Crow Indian Reservation.<sup>2</sup> Two ambulances would be needed by 1995, with one additional ambulance needed by 2015. (See Table 4.5.2.5-2.)

#### Social services

The requirements for personnel and capital facilities associated with social services would increase during both the mid-term and long-term. By 1995, the number of medical social workers would need to increase from one to two (100 percent). To meet long-term demand (2015), a one additional medical social worker would be needed, increasing the total number to three (200 percent). There would be requirements for 800 sq. ft. of space in the mid-term and 1,000 sq. ft. of space in the long-term. These space requirements represent significant increases over existing conditions, for which exact quantitative information is unavailable. (See Table 4.5.2.5-2.)

#### Mental health

The requirements for personnel and capital facilities associated with mental health would increase for the mid-term and long-term. By 1995, demand for mental health specialists is forecast to increase from one to two (100 percent). Between 1995 and 2015, additional mental health specialist would be needed, increasing total demand to three (200 percent) for the long-term. Requirements for 800 sq. ft. of space in the mid-term and 1,000 sq. ft. of space in the long-term are projected. These requirements are significantly greater than the existing capital facilities, for which quantitative information is unavailable. (See Table 4.5.2.5-2.)

#### Community health

The requirements for personnel and capital facilities associated with community health would increase for the mid-term and long-term. By 1995, the need for community health nurses would increase from four to seven (75 percent). Between 1995 and 2015, three additional community health nurses would be needed, increasing the total number to eleven (133 percent). There would be need for 800 sq. ft. of space in the mid-term and 1,000 sq. ft. in the long-term. The requirements for space would represent significant increases over existing capital facilities, for which quantitative information is unavailable. See Table 4.5.2.5-2.)

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<sup>1</sup>The Indian Health Service hospital at Crow Agency serves the Indian populations of Big Horn and Rosebud counties. The analyses presented in this report for hospital and health services, social services, mental health, and community health are based upon the total Indian population of Big Horn County, including the Crow Indian Reservation. In 1995 the estimated Indian population in Big Horn and Rosebud counties would be 11,240. In 2015, the estimated population would be 13,620. If total service area is considered, the forecasts presented in the report would therefore need to be increased by 40.5 percent in 1995 (resulting in a demand for 45 hospital beds) and by 31.0 percent in 2015 (resulting in a demand for 54 beds -- based on a standard of 4 beds per 1,000 population).

<sup>2</sup>Section 3.3.2.4 discusses the emergency services available in Big Horn County for the Crow Indian Reservation.

## Recreation

Because data on existing rural recreation acres are incomplete and standards for rural recreation acres on reservation lands are unavailable, the recreation needs under the baseline scenario are not quantified by acres. Rather, impacts to recreation will be analyzed by considering increases in demand (recreation days) for specific recreation activities. The population that affects recreation participation (measured in recreation days) is limited to the total Indian population of Big Horn County (both on and off the reservation), as only the Indian population is allowed access to tribal lands for dispersed recreation purposes. Table 4.5.2.5-3 displays the changes in recreation participation for specific activities under the baseline forecast. These data should be viewed with some caution since they are based on participation rates applicable to the general population of Montana (Wallwork, Lenihan, and Polzin 1980), Indian specific rates being unavailable. Annual changes in recreation days would not exceed 10 percent for any activity. Furthermore, nearly all of the activities are forecast to receive less than a 10 percent increase over any given five-year period. Therefore, although increased usage is forecast, it is not anticipated to create significant negative impacts on rural recreation.

Noteworthy, however, is the effect that long-term, unregulated, increased hunting could have on reservation big game and bird species if adequate habitat and breeding acres are not maintained. These types of acres are essential for replenishing the numbers of wildlife harvested annually. Secondly, Table 4.5.2.5-3 clearly shows fishing as the number one activity in terms of total recreation days. Although some of these recreation days may occur outside of the reservation, it is most likely that the Bighorn River will remain a primary fishing river and that the forecast population increases will compound the present fishing demand on this river.

### 4.5.2.6 Fiscal

#### Crow Tribe

This section summarizes the revenues and expenditures of the Crow Tribe over the forecast period under baseline conditions. Since the emphasis of the study is on identifying the effects of proposed mines on the fiscal condition of the tribe, greater attention is given to areas subject to impact by one or more of the proposed actions. Major portions of the tribe's expenditures and revenues are set at a constant level or are based on population. The population based revenues are relatively small in comparison to the total revenue. Since the Tribe (and the reservation) experiences no population effects from the proposed mines, these major aspects of the expenditures and revenues either do not change under any scenario (including the baseline) or are similar for all scenarios.

An important component of tribal revenues and expenditures are related to the royalties received from coal production.

In the baseline scenario, the tribe receives royalties from coal production at the Absaloka Mine.<sup>1</sup> Tribal resolution 80-21 states that 60 percent of the royalties must be allocated as dividend payments for tribal members, 30 percent must go for land purchases, and 10 percent to tribal administration.

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<sup>1</sup>The royalty rates used are assumed to remain constant at current negotiated rates throughout the entire forecast period. This assumption should not be viewed as prejudicial of the outcome of future rate negotiations. Present Crow royalty rates are 6 percent on 4 million tons per year through 1993, and 8 percent on 200,000 tons in 1983, less tonnage from the state lease which is prorated by customer on a monthly basis. The 8 percent royalty rate is applicable to new sales. Because the outcome of royalty renegotiation in 1984 cannot be predicted, present royalty rates should be the basis for all projections.

TABLE 4.5.2.5-3

Baseline Forecast  
Recreation Days by Activity by Year  
Crow Reservation

Recreation Activity	Year						
	1982	1985	1990	1995	2000	2005	2009
Hunting	22,700	24,100	26,200	28,200	30,200	32,200	33,700
Fishing	53,200	56,400	61,400	65,900	70,700	75,400	78,800
Camping	37,200	39,500	42,900	46,100	49,500	52,800	55,200
River Floating	6,500	6,800	7,500	8,000	8,600	9,200	9,600
Snowmobiling	4,800	5,100	5,500	5,900	6,400	6,800	7,100
Horseback Riding	12,100	12,900	14,000	15,000	16,200	17,200	18,000

Source: Mountain West Research-North, Inc., 1982.

Note: These projections are based on MWR population forecasts and participation data as projected in Attitudes -- Montana Outdoor Recreation Survey.

The remainder of this section presents the revenue and expenditure forecasts, along with the forecast net fiscal balance for the tribe.

#### Revenue forecast

Table 4.5.2.6-1 presents the forecast tribal revenues, by source, for the baseline scenario. Total tribal revenues are expected to rise from \$6.96 million in 1982 to \$12.32 million in 2015, an increase of 76.9 percent. The revenues are highly dependent on coal royalty receipts. Almost all of the increase in tribal revenues over the forecast period are caused by increases in the coal royalties. Coal royalties are expected to increase from \$2.35 million in 1982 to \$7.70 million in 1995, an increase of 228.0 percent. This level will then be maintained through 2015. These royalties and federal contracts and grants constitute the major revenue sources for the tribe, accounting for 33.7 and 33.8 percent of the revenues, respectively, in 1982. By 2015, royalties will account for a forecast 62.5 percent of the revenues, while federal contracts and grants are forecast to decline in importance to about 19.1 percent of total revenues, indicating the increased importance of the royalties to the fiscal condition of the Tribe over the forecast period.

#### Expenditure forecast

Expenditures are presented in two forms: (1) expenditures that will remain constant across scenarios, and (2) second will be the expenditures specifically related to coal royalties. The expenditures that are assumed to remain constant between the scenarios are presented in Table 4.5.2.6-2. The total nonroyalty expenditures are forecast to increase from \$4.24 million in 1982 to \$4.84 million in 2015, an increase of 14.0 percent. The tribal staff spending is expected to increase from \$464,000 in the 1982 budget to \$740,000 in 2015, an increase of 59.5 percent. Tribal projects are forecast to increase 59.0 percent to \$682,000 in 2015. Although there is a high likelihood that this item will increase, at least over the short run, due to increased tribal litigation concerning the coal severance tax. The exact amount of the increase is not known; the attorneys/litigation line item is therefore assumed to remain constant over the forecast period.

Table 4.5.2.6-3 presents expenditures directly related to coal royalty payments. Currently, 60 percent of the royalties are mandated to be spent on dividend payment and 30 percent on land purchases. The remaining 10 percent of the royalty money goes into the tribal treasury to be spent on administrative functions of the tribe. Lacking specification of any change in this distribution, it is assumed to remain constant over the forecast period. The 10 percent allotted to tribal administration is not included in Table 4.5.2.6-3 because no identifiable expenditures are made with these moneys. Total identifiable spending based on coal royalties is expected to increase from \$2.24 million in the 1982 budget to \$6.93 million in 1995, remaining constant at this level throughout the remainder of the period. This represents an increase of 210.0 percent. Dividend payments are expected to increase from the \$1.65 million budgeted in the 1983 budget to \$4.62 million by 1995. Land purchase expenditures from royalty receipts are forecast to increase from \$586,000 to \$2.31 million over this same period.

Net fiscal balance. Table 4.5.2.6-4 presents the net fiscal balance for the tribe for the baseline scenario. The tribe will have a positive fiscal balance over the entire forecast period, ranging from a low of \$466,000 in 1987 to a high of \$911,000 in 1995. A significant portion of the excess money can be attributed to the 10 percent of the coal royalties that are allocated for tribal administration but are not shown as an administrative expense.

Capital. The reservation does not require any additional capital facilities during the forecast period. The tribe does have an outstanding debt of approximately \$2.40 million that must be serviced

TABLE 4.5.2.6-1

Crow Reservation Tribal Revenues  
Baseline Scenario  
1982-2015  
(1982 \$000)

Year	Interest	Land Leases	Fines	Damage Payments	Coal Royalties <sup>a</sup>	Oil and Gas Leases	Oil and Gas Royalties	Federal Contracts	Revolving Credit	FHA Reserve	Carryover Beginning Balance	Total
1982	119.6	130	.3	.5	2,350	400	150	2,355.7	113.8	231.8	1,112.2	6,964
1983	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1984	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1985	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1986	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1987	119.6	130	.3	.5	1,926	400	150	2,355.7	113.8	231.8	1,112.2	6,540
1988	119.6	130	.3	.5	2,568	400	150	2,355.7	113.8	231.8	1,112.2	7,182
1989	119.6	130	.3	.5	2,568	400	150	2,355.7	113.8	231.8	1,112.2	7,182
1990	119.6	130	.3	.5	3,424	400	150	2,355.7	113.8	231.8	1,112.2	8,038
1995	119.6	130	.4	.5	7,704	400	150	2,355.7	113.8	231.8	1,112.2	12,418
2000	119.6	130	.4	.5	7,704	400	150	2,355.7	113.8	231.8	1,112.2	12,318
2005	119.6	130	.4	.5	7,704	400	150	2,355.7	113.8	231.8	1,112.2	12,318
2010	119.6	130	.4	.5	7,704	400	150	2,355.7	113.8	231.8	1,112.2	12,318
2015	119.6	130	.5	.5	7,704	400	150	2,355.7	113.8	231.8	1,112.2	12,418

Source: Mountain West Research-North, Inc., 1983.

<sup>a</sup>The royalty rates used are assumed to remain constant to current negotiated rates throughout the entire forecast period. This assumption should not be viewed as prejudicing the outcome of future rate negotiations of the Tribe.

TABLE 4.5.2.6-2

Crow Reservation Tribal Expenditures  
All Scenarios  
1982-2015  
(1982 \$000)

Year	Tribal Staff	Attorney Litigation	Tribal Projects	Operating Expenses	Repairs and Utilities	Capital	Welfare and Burials	Education	Crow Land Enterprises	Central Education	Federal Grants	FHA and Credit	Total
1982	464	175	428	85	125	20	108	50	60	24	2,356	346	4,241
1983	474	175	437	85	125	20	110	50	60	24	2,356	346	4,262
1984	483	175	445	85	125	20	112	50	60	24	2,356	346	4,281
1985	492	175	454	85	125	20	115	50	60	24	2,356	346	4,302
1986	501	175	462	85	125	20	117	50	60	24	2,356	346	4,321
1987	510	175	470	85	125	20	119	50	60	24	2,356	346	4,340
1988	518	175	478	85	125	20	121	50	60	24	2,356	346	4,358
1989	527	175	486	85	125	20	123	50	60	24	2,356	346	4,377
1990	534	175	493	85	125	20	124	50	60	24	2,356	346	4,392
1995	542	175	528	85	125	20	133	50	60	24	2,356	346	4,474
2000	614	175	566	85	125	20	143	50	60	24	2,356	346	4,564
2005	654	175	604	85	125	20	152	50	60	24	2,356	346	4,651
2010	690	175	636	85	125	20	160	50	60	24	2,356	346	4,727
2015	740	175	682	85	125	20	172	50	60	24	2,356	346	4,835

Source: Mountain West Research-North, Inc., 1983.



TABLE 4.5.2.6-3

Expenditures Based on Crow Reservation Tribal Royalty Payments  
 Baseline Scenario  
 1982-2015  
 (1982 \$000)

Year	Dividend Payments	Land Purchases	Total
1982	1,649	586	2,235
1983	1,156	578	1,734
1984	1,156	578	1,734
1985	1,156	578	1,734
1986	1,156	578	1,734
1987	1,156	578	1,734
1988	1,541	770	2,311
1989	1,541	770	2,311
1990	2,054	1,027	3,081
1995	4,622	2,311	6,933
2000	4,622	2,311	6,933
2005	2,622	2,311	6,933
2010	4,622	2,311	6,933
2015	4,622	2,311	6,933

Source: Mountain West Research-North, Inc., 1982.

TABLE 4.5.2.6-4  
Crow Reservation Tribal Net Fiscal Balance  
Baseline Scenario  
1982-2015  
(1982 \$000)

Year	Revenues	Expenditures	Balance
1982	6,964	6,476	488
1983	6,540	5,996	544
1984	6,540	6,015	525
1985	6,540	6,036	504
1986	6,540	6,055	485
1987	6,540	6,074	466
1988	7,182	6,669	513
1989	7,182	6,688	494
1990	8,038	7,473	565
1995	12,318	11,407	911
2000	12,318	11,497	821
2005	12,318	11,584	734
2010	12,318	11,660	658
2015	12,318	11,768	550

Source: Mountain West Research-North, Inc., 1983.

during the forecast period. Tribal resolution 83-4 allocates 50 percent of all future bonus income of the tribe to pay off the debt. Since there is no definite schedule for bonus payment, the payment of this debt is not projected.

### Indian Health Service

The Indian Health Service will provide services to all Indians located in Big Horn County. The demand for these services is assumed to be a function of the total number of Indians that are located in the county, not just the Indians on the reservation. The expenditures for these services are projected in this section. The revenues for the service are assumed to be the responsibility of the federal government and are therefore not forecast in this section.

The IHS expenditures by major category for the baseline period are presented in the remainder of this section. Capital outlays triggered by the population increase over the period are also presented in this section.

Expenditure forecast. Table 4.5.2.6-5 presents the IHS forecast expenditures by major category. Total IHS spending is forecast to increase from \$5.59 million in 1982 to \$7.22 million in 2015, an increase of 29.0 percent. The major categories of expenditures are the hospital, clinics, and the contract health care. The hospital/clinics expenditures are expected to remain constant while the contract health care is expected to increase over the period. Contract health is forecast to increase from \$1.70 million in 1982 to \$2.73 million by 2015, an increase of 60.7 percent. The contract health care is expected to become a more dominant budget category for the IHS over the period. It comprises 30.5 percent of the total IHS noncapital spending in 1982 and grows to 37.9 percent of the total by 2015.

Table 4.5.2.6-6 presents the capital expenditures that the IHS is forecast to make over the period. The IHS is anticipated to make constant capital expenditures of \$219,000 per year for sanitation facilities over the entire period. The additional capital requirements occur when the IHS has to make expenditures to add space for the health service or hospital beds. The expenditures in 1983 and 1999 are for additional space for the IHS mental health, community health, and social service functions. The large expenditures of \$200,000 in 1992, 2000, and 2009 are for additional hospital beds in the IHS hospital.

### 4.5.3 Crow Agency and Northeast Area

#### 4.5.3.1 Introduction

This section presents the baseline forecasts for Crow Agency and the northeast area of the Crow Indian Reservation. The section is divided into five subsections. Section 4.5.3.2 presents the baseline population and economic forecasts. Section 4.5.3.3 refers to the discussion of social life and cultural diversity under baseline conditions being prepared by the Crow Tribe. Section 4.5.3.4 presents baseline housing forecasts. Finally, sections 4.5.3.5 and 4.5.3.6 present facilities/services and fiscal forecasts, respectively.

#### 4.5.3.2 Population and Economy

Tables 4.5.2.2-1 and 4.5.2.2-2 presented the baseline population forecasts for Crow Indians and non-Indians in Crow Agency and the northeast area of the Crow Reservation.

TABLE 4.5.2.6-5

Crow Reservation Tribal IHS Expenditures  
All Scenarios  
1982-2015  
(1982 \$000)

Year	Hospital Clinics	Maintenance Repair	Dental Services	Mental Health	Contract Health	Public Health Nursing	Tribal Health Support	Sanitation	Health Education	Medicare and Medicaid	Total O & M
1982	2,848	43	275	152	1,704	373	4	79	21	91	5,592
1983	2,848	43	281	155	1,741	380	4	81	22	93	5,648
1984	2,848	43	287	158	1,774	388	5	83	22	95	5,703
1985	2,848	43	292	161	1,807	395	5	84	22	97	5,754
1986	2,848	43	297	164	1,840	402	5	86	23	98	5,806
1987	2,848	43	303	167	1,873	409	5	87	23	100	5,858
1988	2,848	43	308	170	1,905	416	5	89	24	102	5,910
1989	2,848	43	313	173	1,937	423	5	90	24	104	5,960
1990	2,848	43	318	176	1,967	430	5	92	24	105	6,008
1995	2,848	43	341	188	2,112	462	5	98	26	113	6,236
2000	2,848	43	366	202	2,268	496	6	106	28	121	6,484
2005	2,848	43	391	216	2,417	528	6	112	30	129	6,770
2010	2,848	43	412	227	2,548	557	6	119	32	136	6,928
2015	2,848	43	442	244	2,734	597	7	127	34	146	7,222

Source: Mountain West Research-North, Inc., 1983.

TABLE 4.5.2.6-6  
 IHS Capital Expenditures  
 All Scenarios  
 1982-2015  
 (1982 \$000)

Year	Constant Capital	Additional Capital	Total Capital
1982	219	--	219
1983	219	30	249
1985	219	--	219
1990	219	--	219
1992	219	200	419
1995	219	--	219
1999	219	10	229
2000	219	200	419
2005	219	--	219
2009	219	200	419
2010	219	--	219
2015	219	--	219

Source: Mountain West Research-North, Inc., 1983.

As shown in Table 4.5.2.2-1, the Crow Indian population of this area is forecast to increase from 2,144 people in 1980 to 2,577 people in 1990, a 20 percent increase. The Crow population is then forecast to grow by 15 percent during the 1990s and by 13 percent between 2000 and 2010. The 2015 population of 3,645 represents a 70 percent increase over the actual 1980 population. As noted in the employment forecasts in Appendix 8, total employment by place of residence for Crow Indians in the area is forecast to grow from 471 workers in 1980 to 575 workers in 1990, a 22 percent increase. Employment is then forecast to grow by 31 percent during the 1990s and by 25 percent between 2000 and 2010. Because employment is forecast to grow much faster than population in Crow Agency and the northeast area, it will serve to increase the labor force participation rate and decrease the unemployment rate over the forecast period.

As shown in Table 4.5.2.2-2, the non-Indian baseline population in Crow Agency and the northeast area is forecast to remain stable at about 420 persons through 2000 and then increase to 507 people by 2015. Non-Indian employment by place of residence in the area is forecast to increase slowly from 197 workers in 1980 to 213 workers in 2015.

#### 4.5.3.3 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe. (4:TS 1983.)

#### 4.5.3.4 Housing

As shown in Table 4.5.3.4-1, Crow baseline demand for housing in the Crow Agency and northeast area is forecast to increase from the 1980 inventory of 448 units to 718 units in 2000, a 60 percent, 270 unit increase. After 2000, housing demand is forecast to grow more slowly, reaching 881 units in 2015, a 23 percent, 163 unit increase over the demand in 2000.

#### 4.5.3.5 Facilities and Services

##### Overview

Despite the population increase of Crow Agency in the baseline scenario, the existing facilities and services for fire protection, water and sewer systems, and recreation have adequate capacities to meet demand in both the mid-term (1995) and long-term (2015). The population increases from approximately 520 in 1962 to 640 (23 percent) in the mid-term and 760 (46 percent) in the long-term projections (see Table 4.5.2.5-1). The magnitude of the increases in requirements for capital facilities and equipment is not expected to cause Crow Agency to change from its currently unincorporated status. The existing surplus capacities, which also serve the daily demands associated with the Indian Health Service Hospital, the headquarters of the Bureau of Indian Affairs, and the headquarters of the Crow Indian Tribal Government, are adequate for expected future levels of demand. The following sections present detailed information about capital facilities and equipment at Crow Agency. The information is presented in terms of change over the mid-term (1995) and long-term (2015).

##### Fire

The existing 1,000 sq. ft. of space and one fire truck would be adequate for mid-term and long-term needs (see Table 4.5.3.5-1).

TABLE 4.5.3.4-1

Baseline Scenario Forecast  
Crow Indian Housing Demand  
Crow Reservation Allocation Areas  
(Housing Units for Crow Population Only)

Year	Crow Reservation (Total)	Crow Agency & Northeast Area	Lodge Grass & Southeast Area	Central Area	West Area
1980	1,117	448	462	99	108
1981	1,148	459	474	103	112
1982	1,179	471	485	107	116
1983	1,222	487	501	113	121
1984	1,259	501	515	117	126
1985	1,293	513	528	122	130
1986	1,334	529	544	126	135
1987	1,369	542	558	130	139
1988	1,414	558	575	136	145
1989	1,449	572	589	139	149
1990	1,478	583	600	143	152
1991	1,516	598	616	146	156
1992	1,548	610	629	149	160
1993	1,588	625	644	154	165
1994	1,616	636	656	156	168
1995	1,643	646	667	159	171
1996	1,674	657	680	162	175
1997	1,716	674	697	166	179
1998	1,760	691	715	170	184
1999	1,797	705	731	173	188
2000	1,831	718	745	176	192
2005	1,936	759	786	171	216
2010	2,060	808	836	182	230
2015	2,247	881	912	199	251

Source: Mountain West Research-North, Inc., 1982.

TABLE 4.5.3.5-1

Baseline Scenario for Facilities/Services Requirements for Selected Years  
Crow Agency (Unincorporated)  
Baseline and "With-Project" Scenarios  
1982, 1995, 2015

Facilities/Services	Total Requirements			Increase Over Existing (1982)		Percent Change From Existing	
	Existing (1982)	Mid-Term (1995)	Long-Term (2015)	Mid-Term (1995)	Long-Term (2015)	Mid-Term (1995)	Long-Term (2015)
<b>MAJOR CAPITAL FACILITIES AND EQUIPMENT</b>							
Fire <sup>a</sup>							
Space (sq. ft.)	1,000	1,000	1,000	none	none	none	none
Fire Trucks	1	1	1				
Water							
Production/Treatment (mgd)	0.3	0.1	0.1	none	none	none	none
Storage (mgd)	1.5	0.3	0.4				
Distribution (mgd)	0.3	0.1	0.1				
Sewer <sup>b</sup>							
Treatment (acres)	17	7	8	none	none	none	none
Collection (mgd)	0.3	0.1	0.1				
Recreation							
Parkland (acres)	40	6	8	none	none	none	none

Source: Mountain West Research-North, Inc., 1982.  
Notes: mgd is million gallons per day.

All mgd are rounded to the nearest one thousand gallons.

The "with-project" scenarios include: Young's Creek, CX level 1, CX level 2, Wolf Mountain, cumulative.

The projections for the baseline scenario are also appropriate for all with-project scenarios. Projections for facilities/services requirements in specific jurisdictions are either identical, or have minimal, insignificant variation among scenarios. Levels of variation in projections for the facilities/services requirements among scenarios do not create diverse, incremental requirements for personnel or capital facilities and equipment. The variations in the projections between the baseline scenario and the with-project scenarios that do occur are discussed in the text.

Changes in facilities/services requirements show no significant "peak year" trends and are therefore addressed in terms of "mid-term" (1995) and "long-term" (2015) to provide a clearer perspective on the magnitude and rate of change required.

<sup>a</sup>Assumes a minimum requirement of one fire truck and appropriate space (sq. ft.) appropriate fire trucks are assumed, designated for structural fire protection.

<sup>b</sup>Refer to Section 3.4.3.5 for discussion about additional sewer treatment plant capacity in the industrial park located at Crow Agency.



## Water

The existing capacities of 0.3 million gallons per day (mgd) for the water production/treatment and distribution systems and the capacity of 1.5 mgd for water storage would be adequate for mid-term and long-term needs (see Table 4.5.3.5-1).

## Sewer

The existing number of approximately seventeen acres of lagoons for sewer treatment and the capacity of approximately 0.3 mgd for the sewer collection system would be adequate for mid-term and long-term needs (see Table 4.5.3.5-1).

## Recreation

As shown in Table 4.5.3.5-1, the existing forty acres of recreation area are above the minimum population-based standards and will be adequate for the entire forecast period. However, the present situation of inadequate funds for facility development and maintenance will continue throughout the forecast period unless budget changes redirect funds for this purpose.

### 4.5.3.6 Fiscal

There are no identifiable financial entities in the Crow Agency Area. therefore, no fiscal forecasts were prepared.

## 4.5.4 Lodge Grass and Southeast Area

### 4.5.4.1 Introduction

This section presents the baseline forecasts for Lodge Grass and the Southeast area of the Crow Indian Reservation. The section is divided into five subsections. Section 4.5.4.2 presents the baseline population and economic forecasts. Section 4.5.4.3 refers to the discussion of social life and cultural diversity under baseline conditions prepared by the Crow Tribe. Section 4.5.4.4 presents baseline housing forecasts. Finally, sections 4.5.4.5 and 4.5.4.6 present facilities/services and fiscal forecasts, respectively.

### 4.5.4.2 Population and Economy

Tables 4.5.2.2-1 and 4.5.2.2-2 presented the baseline population forecasts for Crow Indians and non-Indians in Lodge Grass and the southeast area of the Crow Reservation.

As shown in Table 4.5.2.2-1, the Crow Indian population of this area is forecast to increase from 1,827 people in 1980 to 2,188 people in 1990, a 20 percent increase. The Crow population is then forecast to grow by 16 percent during the 1990s and by 12 percent between 2000 and 2010. The 2015 population of 3,100 represents a 70 percent increase over the actual 1980 population. As noted in the employment forecasts in Appendix B, total employment by place of residence for Crow Indians in the area is forecast to grow from 285 workers in 1980 to 327 workers in 1990, a 15 percent increase. Employment is then forecast to grow by 24 percent during the 1990s and by 21 percent between 2000 and 2010. Because employment is

forecast to grow much faster than population in Crow Agency and the northeast area, it will serve to increase the labor force participation rate and decrease the unemployment rate over the forecast period.

As shown in Table 4.5.2.2-2, the non-Indian baseline population in Lodge Grass and the southeast area is forecast to decline from 820 people in 1980 to 800 people in 1990 and to 779 people in 2000. It is then forecast to increase steadily to 869 people by 2015. Non-Indian employment by place of residence in the area is forecast to increase slowly from 360 workers in 1980 to 384 workers in 2015.

#### 4.5.4.3 Social Life and Cultural Diversity

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe (4ITS 1983).

#### 4.5.4.4 Housing

As shown in Table 4.5.3.4-1, Crow baseline demand in Lodge Grass and the southeast area is forecast to increase from the 1980 inventory of 462 units to 745 units in 2000, an increase of 61 percent, and 283 units. After 2000, housing demand is forecast to increase more slowly, reaching 912 units in 2015, a 22 percent and 167 unit increase over housing demand in 2000.

#### 4.5.4.5 Facilities and Services

##### Lodge Grass

Overview. As the population of the city of Lodge Grass increases in the baseline scenario, some facilities and services experience moderate or severe increases in levels of demand for personnel and capital facilities. Other facilities and services have existing personnel and capital facilities that are adequate for demand in the mid-term (1995) and long-term (2015) projection periods. For Lodge Grass, the population increases from approximately 920 in 1982 to 1,100 (20 percent) in the mid-term and 1,400 (52 percent) in the long-term projections. (See Table 4.5.2.5-1.)

The magnitude of the increases in requirements for personnel and capital facilities is insufficient to require Lodge Grass to significantly change its current practices of operation. General government and shop would have an adequate number of personnel for mid-term and long-term needs. The police staff would require an increase from one to two police officers (100 percent). Capital facilities for general government, police, fire, shop, water production/treatment and distribution, and sewer collection would be adequate for mid-term and long-term needs. The capital facilities for residential streets, water storage, sewer treatment, and recreation would increase in the mid-term and long-term.

The following sections present detailed information about personnel, capital facilities, and equipment for the facilities and services of Lodge Grass. The information is presented in terms of change measurable in the mid-term and long-term projections.

General government. The existing staff (one position) and the 1,200 sq. ft. of existing space would be adequate for mid-term and long-term needs (see Table 4.5.4.5-1).

TABLE 4.5.4.5-1

Baseline Scenario for Facilities/Services Requirements for Selected Years  
 City of Lodge Grass  
 Baseline and "With-Project" Scenarios  
 1982, 1995, 2015

Facilities/Services	Total Requirements			Increase Over Existing (1982)			Percent Change From Existing		
	Existing (1982)	Mid- Term (1995)	Long Term (2015)	Existing (1982)	Mid- Term (1995)	Long- Term (2015)	Existing (1982)	Mid- Term (1995)	Long- Term (2015)
<b>PERSONNEL</b>									
General Government Professional Staff	1	1	1	none	none	none	none	none	none
Police									
Sworn Officers	1	2	2	1	1	1	100	100	100
Shop									
Staff	2	2	2	none	none	none	none	none	none
<b>MAJOR CAPITAL FACILITIES AND EQUIPMENT</b>									
General Government									
Space (sq. ft.)	1,200	800	800	none	none	none	none	none	none
Police									
Space (sq. ft.)	1,300	500	500	none	none	none	none	none	none
Police Vehicles	1	1	1	none	none	none	none	none	none
Fire <sup>d</sup>									
Space (sq. ft.)	2,300	1,000	1,300	none	none	none	none	none	none
Fire Trucks	1	1	1	none	none	none	none	none	none
Shop									
Space (sq. ft.)	1,300	1,000	1,300	none	none	none	none	none	none
Streets									
Residential (miles)	1.75	3.5	4.9	1.75	1.75	3.15	100	100	180
Water									
Production/Treatment (mgd)	0.270	0.165	0.210	none	none	none	none	none	none
Storage (mgd)	0.180	0.520	0.665	0.340	0.340	0.485	188	188	269
Distribution (mgd)	0.270	0.165	0.210	none	none	none	none	none	none

TABLE 4.5.4.5-1 (cont.)  
Baseline Scenario for Facilities/Services Requirements for Selected Years  
City of Lodge Grass  
Baseline and "With-Project" Scenarios  
1982, 1995, 2015

Facilities/Services	Total Requirements			Increase Over Existing (1982)			Percent Change From Existing		
	Existing (1982)	Mid- Term (1995)	Long Term (2015)	Mid- Term (1995)	Long- Term (2015)		Mid- Term (1995)	Long- Term (2015)	
Sewer <sup>b</sup>									
Treatment (acres)	12	11	14		2		none	17	
Collection (mgd)	0.270	0.165	0.194	none	none		none	none	
Recreation Parkland (acres)	3	11	13	8	10		267	433	

Source: Mountain West Research-North, Inc., 1982.

Notes: Space (sq. ft.) is rounded to the nearest one hundred sq. ft.  
mgd = million gallons per day.

All mgd are rounded to the nearest one thousand gallons.

The "with-project" scenarios include: Young's Creek, CX Level 1, CX Level 2, Wolf Mountain, cumulative. The facilities/services requirements represent projections for the baseline scenario, which provides meaningful information appropriate for all scenarios. Projections for facilities/services requirements in specific jurisdictions are either identical, or have minimal, insignificant variation among scenarios. Levels of variation in projections for the facilities/services requirements among scenarios do not create diverse, incremental requirements for personnel or capital facilities and equipment. Refer to textual sections of specific scenarios for discussions pertaining to variations in the projections between the baseline scenario and the "with-project" scenarios.

Changes in facilities/services requirements show no significant "peak year" trends and are therefore addressed in terms of "mid-term" (1995) and "long-term" (2015) to provide a clearer perspective on the magnitude and rate of change required. Appropriate fire trucks are assumed to be designed for structural fire protection.

Refer to Section 3.4.4.5 for discussion about plans for replacement of a portion of the sewer system.

Police. The number of sworn officers would increase from one in 1982 to two sworn officers (100 percent) in the mid-term and long-term projections. The 1,300 sq. ft. of space and one police vehicle would be adequate for mid-term and long-term needs. (See Table 4.5.4.5-1.)

Fire. The 2,300 sq. ft. of existing space and the one fire truck would be adequate for mid-term and long-term needs (see Table 4.5.4.5-1).

Shop. The existing staff, with two positions, and the existing 1,300 sq. ft. of space would be adequate for mid-term and long-term needs (see Table 4.5.4.5-1).

Streets. The 1.75 miles of paved, residential streets in 1982 would need to be increased to 3.5 miles (100 percent) by 1995. After 1995, during the period between the mid-term and long-term projections, the number of miles of residential streets increases to 4.9 miles (180 percent) for the long-term projection. (See Table 4.5.4.5-1.)

Water. The existing water production/treatment and distribution capacity of approximately 0.270 mgd would be adequate for mid-term and long-term needs. The existing capacity of the water storage system would need to be increased from 0.180 mgd in 1982 to 0.520 mgd (188 percent) by 1995 and 0.665 mgd (269 percent) in 2015. (See Table 4.5.4.5-1.)

Sewer. The existing number of approximately twelve acres of lagoons for sewer treatment would be adequate for mid-term needs. By 2015, the number of acres needed would increase to fourteen (17 percent). The existing capacity of approximately 0.270 mgd for the sewer collection system would be adequate for mid-term and long-term needs. (See Table 4.5.4.5-1.)

Recreation. Lodge Grass will experience demand for increased recreation acreage throughout the baseline forecast period. The existing three acres of parkland are inadequate to meet the population-based standards of ten acres per 1,000 population. This inadequacy continues under the baseline forecast reaching a long-term need of thirteen recreation acres, or an amount ten acres (433 percent) above the existing level. (See Table 4.5.4.5-1.)

## Wyola

Overview. As the population of Wyola increases in the baseline scenario, there is an assumed minimum requirement for one fire truck and accompanying space. Wyola has received grant monies from Montana for the replacement and development of water and sewer systems, which after completion in 1983, will be adequate for mid-term (1995) and long-term (2015) needs. Wyola has no existing lands formally dedicated as recreation parklands. The increases in population would not require change from the existing condition pertaining to recreation in Wyola. The population increases from approximately 90 in 1982 to 110 (22 percent) in the mid-term and 130 (44 percent) in the long-term projections. (See Table 4.5.2.5-1.)

The magnitude of the increase in requirements for capital facilities and equipment would not require Wyola to change from its currently unincorporated status. The following sections present detailed information about capital facilities and equipment at Wyola. The information is presented in terms of change measurable in the mid-term and long-term periods of projection.

Fire. Although the increase in population is insufficient to require that Wyola change its currently unincorporated status, it is assumed that there will be a minimum requirement of one fire truck and accompanying space for mid-term and long-term needs. The one fire truck and associated space represents a significant change because no fire protection equipment is now stationed in Wyola. (See Table 4.5.4.5-2.)

Water. Wyola has received grant monies from Montana for the replacement and development of its water and sewer systems. After completion in 1983, the water production/treatment and distribution systems will have capacities of approximately 0.3 mgd, which would be adequate for mid-term and long-term needs. The existing water storage system is also designated for replacement in 1983; the capacity of the new water storage system has not been finally determined. The existing water storage capacity is 0.03 mgd; requirements would reach 0.05 mgd by 1995, a 67 percent increase. Between 1995 and 2015 requirement for water storage capacity would rise to 0.07 mgd, an increase of 133 percent over current levels. (See Table 4.5.4.5-2.)

Sewer. In Wyola, the current system of private septic fields is being changed to a formal sewer treatment and collection system. According to the populations projections, a minimum of two acres of sewer treatment lagoons will be needed with the new system in both the mid-term and long-term demands. The sewer collection system, which would have a capacity of approximately 0.03 mgd, would be adequate for mid-term and long-term needs. (See Table 4.5.4.5-2.)

Recreation. Wyola has no formally dedicated recreation park lands. The increase in population over the forecast period is insufficient to require a change in existing (1982) conditions pertaining to recreation. Acreage requirements for recreation have not been forecast for Wyola.

#### 4.5.4.6 Fiscal

The remainder of this section presents the revenue and expenditure forecasts for the city's general and enterprise funds and discusses the projected net fiscal balance for the city. The additional major capital improvements that are forecast for Lodge Grass are also identified.

##### Revenue forecast

Table 4.5.4.6-1 presents the forecast community revenue by major fund. Total city revenue is expected to drop from 114,400 in the 1983 budget to \$101,200 by 2015. Revenues are forecast to exhibit a significant drop from 1982 to the first forecast year, 1983. This drop can be attributed to three factors. First, in the general fund, the revenue sharing category is forecast to drop from \$3,300 to nothing in the first forecast period. The elimination of revenue sharing as a source was based upon the current political discussions on cutting spending at the federal level. Second, the enterprise funds have been utilizing a cash fund to offset a significant portion of their operating costs. Since the lack of information concerning the source of revenue for the cash fund make it difficult to forecast the cash fund is assumed to have a zero balance in 1983 and beyond. Third, the city received an insurance payment in the current budget year to offset losses that resulted from misappropriation of funds by the town clerk during previous years. This insurance payment is \$13,000 in the 1983 budget but is a one time payment only. Therefore, they it is not included in future revenue projections for the town budget.

After the initial drop from 1982 to 1983, the revenue for the community is expected to grow from \$67,600 in 1983 to \$101,200 in 2015, an increase of almost 50 percent. General fund revenues are forecast to increase from \$36,000 in 1983 to \$54,000 by 2015, an increase of 50 percent. The total enterprise

TABLE 4-5.4.5-2

Baseline Scenario for Facilities/Services Requirements for Selected Years  
 Wyola (Unincorporated)  
 Baseline and "With-Project" Scenarios  
 1982, 1995, 2015

Facilities/Services	Total Requirements			Increase Over Existing (1982)		Percent Change From Existing	
	Existing (1982)	Mid-Term (1995)	Long-Term (2015)	Mid-Term (1995)	Long-Term (2015)	Mid-Term (1995)	Long-Term (2015)
<b>MAJOR CAPITAL FACILITIES AND EQUIPMENT</b>							
Fire <sup>a</sup>							
Space (sq. ft.)	0	1,000	1,000	1,000	1,000	n <sup>b</sup>	n <sup>b</sup>
Fire Trucks	0	1	1	1	1	n <sup>b</sup>	n <sup>b</sup>
Water <sup>c</sup>							
Production/Treatment (mgd)	0.03	0.02	0.02	--	--	--	--
Storage (mgd)	0.03	0.05	0.06	0.02	0.04	67	200
Distribution (mgd)	0.03	0.02	0.02	--	--	--	--
Sewer <sup>d</sup>							
Treatment (acres)	0	2	2	2	2	na	na
Collection (mgd)	0.03	0.02	0.02	--	--	--	--
Recreation <sup>e</sup>							
Parkland (acres)	na	NF	NF	NF	NF	NF	NF

Source: Mountain West Research-North, Inc., 1982.

Notes: na = not applicable; NF = not forecast.

mgd = million gallons per day.

All mgd are rounded to the nearest one thousand gallons.

The "with-project" scenarios include: Young's Creek, CX level 1, CX level 2, Wolf Mountain, cumulative.

The projections for the baseline scenario are also appropriate for all with-project scenarios. Projections for the facilities/services requirements in specific jurisdictions are either identical, or have minimal, insignificant variation among scenarios. Levels of variation in projections for the facilities/services requirements among scenarios do not create diverse, incremental requirements for personnel or capital facilities and equipment. The variations in the projections between the baseline scenario and the with-project scenarios that do occur are discussed in the text.

Changes in facilities/services requirements show no significant "peak year" trends and are therefore addressed in terms of "mid-term" (1995) and "long-term" (2015) to provide a clearer perspective on the magnitude and rate of change required.

<sup>a</sup> Assumes a minimum requirement of one fire truck and appropriate space (sq. ft.) fire trucks are assumed to be designed for structural fire protection.

<sup>b</sup> A base for calculation of percentage change is not applicable because there are currently no fire trucks stationed in Wyola. Refer to Section 3.4.4.5 for discussion about plans for the replacement of the water and sewer system in Wyola.

<sup>c</sup> Assumes a minimum requirement of one acre for sewer collection per unit of 100 population.

<sup>d</sup> Assumes the increase in population is insignificant and will not require any current informal recreation opportunities.

TABLE 4.5.4.6-1

Lodge Grass Revenues  
All Scenarios  
1982-2015  
(1982 \$000)

Year	PT	LP	RS	General Fund		FF	Misc	Total	Water	Sewer	Enterprise Garbage	Funds Total	Total Revenues
1982	15.0	0.3	3.3	10.8	3.5	0.5	13.4	46.8	32.8	19.5	15.3	67.6	114.4
1983	15.2	0.3	0.0	11.0	1.5	0.5	7.5	36.0	16.7	6.4	8.5	31.6	67.6
1984	15.5	0.3	0.0	11.1	1.6	0.5	7.6	36.6	16.9	6.5	8.7	32.1	68.7
1985	15.7	0.3	0.0	11.3	1.6	0.5	7.7	37.1	17.2	6.6	8.8	32.6	69.7
1986	15.9	0.3	0.0	11.5	1.6	0.5	7.9	37.7	17.4	6.7	8.9	33.0	70.7
1987	16.1	0.3	0.0	11.6	1.6	0.5	8.0	38.1	17.6	6.8	9.0	33.4	71.5
1988	16.4	0.3	0.0	11.8	1.6	0.5	8.1	38.7	17.9	6.9	9.2	34.0	72.7
1989	16.6	0.3	0.0	11.9	1.7	0.6	8.2	39.3	18.1	7.0	9.3	34.4	73.7
1990	16.8	0.3	0.0	12.1	1.7	0.6	8.3	39.8	18.4	7.1	9.4	34.9	74.7
1995	17.6	0.4	0.0	12.8	1.8	0.6	8.8	42.2	19.5	7.5	10.0	37.0	79.2
2000	19.0	0.4	0.0	13.7	1.9	0.6	9.4	45.0	20.8	8.0	10.6	39.4	84.4
2005	20.1	0.4	0.0	14.5	2.0	0.7	9.9	47.6	22.0	8.5	11.3	41.8	89.4
2010	21.2	0.4	0.0	15.3	2.1	0.7	10.5	50.2	23.2	8.9	11.9	44.0	94.2
2015	22.8	0.5	0.0	16.4	2.3	0.8	11.2	54.0	24.9	9.6	12.7	47.2	101.2

Source: Mountain West Research-North, Inc., 1983

Note: PT = property tax

LP = license and permits

RS = revenue sharing

OGT = other government transfers

UF = user fees

FF = fines and forfeitures

Misc = miscellaneous



revenues are forecast to increase from \$31,600 in 1983 to \$47,200 by 2015. In the general fund, the major sources of revenue are assumed to be property tax and government transfers, excluding revenue sharing. These funds are expected to comprise almost 73 percent of the general fund revenue by 2015. The user fees for each enterprise fund component was the only revenue source for the fund.

#### Expenditure forecast

Table 4.5.4.6-2 presents the forecast community expenditures by major function. The total spending is forecast to increase from \$87,100 in 1982 to \$128,000 by 2015, an increase of 47 percent. General fund spending is expected to increase from \$39,200 in 1982 to \$55,300 in 2015. The public safety expenditures are the largest general fund expenditures and are anticipated to increase from \$23,000 in 1982 to \$35,700 in 2015, an increase of nearly 52 percent. The enterprise fund expenditures are forecast to increase from \$47,900 in 1982 to \$72,700 by 2015, an increase of about 52 percent.

#### Net fiscal balance

Table 4.5.4.6-3 presents the forecast net fiscal balance of the city for the forecast period. The city is forecast to have a substantial deficit for the entire forecast period, excluding 1982. As discussed in the revenue section, the major reason for the revenue shortfalls is the elimination of several existing revenue sources during the forecast period. The total deficit is forecast to vary between \$19,600 in 2000 to a high of \$26,800 in 2015. General fund net fiscal balance is forecast to have a deficit of between \$1,300 in 2015 and \$3,700 in 1984. These deficits are consistent with the amount of revenue sharing the community has historically received. The enterprise funds are the major contributors to the total deficit of the community. The deficits are expected to range from a low of \$17,100 in 1983 to a high of \$25,500 by 2015, indicating that without the cash fund to offset enterprise expenditures, the funds will be running large deficit for the entire period. The implication is that user fees for the enterprise funds will have to increase to offset these projected deficits.

#### Capital

Table 4.5.4.6-4 presents the capital outlay schedule for Lodge Grass. The capital outlays are allocated to general fund and enterprise fund functions. The community will require capital improvements totaling \$1.37 million over the forecast period. The revenue funds for these expenditures must come from bonds sales. The bonding capacity of the community is \$105,000, which means that the required additional debt over the forecast period will account for 1,300 percent of the bonding ceiling in 1982. This indicates that Lodge Grass will not have the debt capacity to finance additional capital improvements. The city has three options available to finance the needed improvements:

- 1) Finance as much as possible, using the debt capacity of the community
- 2) Request grant money from the state and/or federal government
- 3) Not contract the needed capital improvements

#### 4.5.5 Central Area

##### 4.5.5.1 Introduction

This section presents the baseline forecasts for the central area of the Crow Indian Reservation. Section 4.5.5.2 presents baseline population and economic forecasts. Section 4.5.5.3 discusses facilities services conditions in Ft. Smith and St. Xavier under the baseline scenario.

TABLE 4.5.4.6-2

Lodge Grass 0 & M Expenditures  
All Scenarios  
1982-2015  
(1982 \$000)

Year	General Government	Public Safety	Highway/ Streets	Health	Culture/ Recreation	Total	Water	Sewer	Garbage	Total	Total Government Spending
1982	14.2	23.5	1.0	0.3	0.2	39.2	21.9	11.4	14.6	47.9	87.1
1983	14.2	23.9	1.0	0.3	0.2	39.6	22.3	11.6	14.8	48.7	88.3
1984	14.3	24.2	1.0	0.3	0.2	40.3	22.6	11.8	15.1	49.5	89.8
1985	14.4	24.6	1.0	0.3	0.2	40.5	22.9	11.9	15.3	50.1	90.6
1986	14.5	24.9	1.1	0.3	0.2	41.0	23.2	12.1	15.5	50.8	91.8
1987	14.6	25.3	1.1	0.3	0.2	41.5	23.6	12.3	15.7	51.6	93.1
1988	14.7	25.6	1.1	0.3	0.2	41.9	23.9	12.4	15.9	52.2	94.1
1989	14.7	26.0	1.1	0.3	0.2	42.3	24.2	12.6	16.1	52.9	95.2
1990	14.8	26.4	1.1	0.3	0.2	42.8	24.6	12.8	16.4	53.8	96.6
1995	15.5	28.0	1.2	0.4	0.2	45.1	26.1	13.6	17.4	57.1	102.2
2000	15.7	29.7	1.3	0.4	0.3	47.4	27.7	14.4	18.5	60.6	108.0
2005	16.2	31.5	1.3	0.4	0.3	49.7	29.4	15.3	19.6	64.3	114.0
2010	16.6	33.3	1.4	0.4	0.3	52.0	31.0	16.1	20.7	67.8	119.8
2015	17.3	35.7	1.5	0.5	0.3	55.3	33.2	17.3	22.2	72.7	128.0

Source: Mountain West Research-North, Inc., 1983.

TABLE 4.5.4.6-3

Lodge Grass Net Fiscal Balance by Fund  
All Scenarios  
1982-2015  
(1982 \$000)

Year	Revenue	General Fund Expenditure	Balance	Revenue	Enterprise Fund Expenditure	Balance	Revenue	Total Expenditure	Balance
1982	46.6	39.2	7.6	67.6	47.9	19.7	114.4	87.1	27.3
1983	36.0	59.6	-3.6	31.6	48.7	-17.1	67.6	88.3	-20.7
1984	36.6	40.3	-3.7	32.1	49.5	-17.4	68.7	89.8	-21.1
1985	37.1	40.5	-3.4	32.6	50.1	-17.5	69.7	90.6	-20.9
1986	37.7	41.0	-3.3	33.0	50.8	-17.8	70.7	91.8	-21.1
1987	36.1	41.5	-3.4	33.4	51.6	-18.2	71.5	93.1	-21.6
1988	36.7	41.9	-3.2	34.0	52.2	-18.2	72.7	94.1	-21.4
1989	35.3	42.3	-3.0	34.4	52.9	-18.5	73.7	95.2	-21.5
1990	35.8	42.8	-3.0	34.9	53.8	-18.9	74.7	96.6	-21.9
1995	42.2	45.1	-2.9	37.0	57.1	-20.1	79.2	102.2	-23.0
2000	45.0	47.4	-2.4	39.4	60.6	-21.2	84.4	108.0	-19.6
2005	47.6	49.7	-2.1	41.8	64.3	-22.5	89.4	114.0	-24.6
2010	50.2	52.0	-1.8	44.0	67.8	-23.8	94.2	119.8	-25.6
2015	54.0	55.3	-1.3	47.2	72.7	-25.5	101.2	128.0	-26.8

Source: Mountain West Research-North, Inc., 1983.

TABLE 4.5.4.6-4

Lodge Grass Capital Expenditures Forecast  
 All Scenarios  
 1982-2015  
 (1982 \$000)

Year	General Fund Capital	Enterprise Capital	Total Capital
1982	0.0	0.0	0.0
1983	777.5	139.0	916.5
1985	0.0	0.0	0.0
1990	0.0	0.0	0.0
1991	50.0	43.0	93.0
1995	0.0	0.0	0.0
1998	133.5	0.0	133.5
2000	0.0	0.0	0.0
2005	50.0	50.0	100.0
2006	0.0	43.0	43.0
2010	0.0	0.0	0.0
2011	80.1	0.0	80.1
2015	0.0	0.0	0.0

Source: Mountain West Research-North, Inc., 1983.

#### 4.5.5.2 Population and Economy

Tables 4.5.2.2-1 and 4.5.2.2-2 presented the baseline population forecasts for Crow Indians and non-Indians in the central area of the Crow Reservation.

As shown in Table 4.5.2.2-1, the Crow Indian population of this area is forecast to increase from 362 people in 1980 to 434 people in 1990, a 20 percent increase; it is then forecast to grow by 11 percent during the 1990s and by 4 percent between 2000 and 2010. The forecast population of 547 in 2015 represents a 51 percent increase over the actual 1980 population. As noted in the employment forecasts in Appendix B, total employment by place of residence for Crow Indians in the area is forecast to grow from 80 workers in 1980 to 82 workers in 1990. Employment is then forecast to grow to 88 workers by 2000 and 92 workers by 2010.

As shown in Table 4.5.2.2-2, the non-Indian baseline population in the central area is forecast to grow steadily from 596 people in 1980 to 632 people in 2000 and then more rapidly to 724 people by 2015. Non-Indian employment by place of residence in the area is forecast to decrease slowly from 293 workers in 1980 to 269 workers in 1985 and then increase to about 310 workers for the remainder of the forecast period.

#### 4.5.5.3 Other Topical Areas of Interest

##### Facilities and services -- St. Xavier

Overview. The magnitude of the increases in requirements for capital facilities and equipment would not require that St. Xavier change from its currently unincorporated status. The population increases from approximately 150 in 1982 to 160 (7 percent) in the mid-term (1995) and 180 (20 percent) in the long-term (2015) projections (see Table 4.5.2.5-1).

As the population of St. Xavier increases in the baseline scenario, there is an assumed minimum requirement for one fire truck and associated space in the mid-term and long-term projections. The residents of St. Xavier currently utilize private water wells, which would be adequate for mid-term and long-term needs. The existing sewer treatment and collection systems would also be adequate for mid-term and long-term needs. St. Xavier currently does not have any formally dedicated recreation park lands. The increases in population do not require change from the existing conditions pertaining to recreation in either the mid-term or long-term projections.

The following sections present detailed information about capital facilities and equipment at St. Xavier. The information is presented in terms of impacts measurable in the mid-term and long-term periods of projection.

Fire. Although the increase in population is insufficient to require that St. Xavier change its currently unincorporated status, it is assumed that there will be a minimum requirement of one fire truck and accompanying space for mid-term and long-term needs. The one fire truck and associated space represents a significant change because no fire protection equipment is now stationed in St. Xavier. (See Table 4.5.5.3-1.)

Water. The expected increase in population is insufficient to require change from the current system of private water wells in St. Xavier. Projections of requirements for a water system are not forecast.

TABLE 4.5.5.3-1

## Baseline Scenario for Facilities/Services Requirements for Selected Years

St. Xavier (Unincorporated)  
Baseline and "With-Project" Scenarios  
1982, 1995, 2015

Facilities/Services	Total Requirements			Increase Over Existing (1982)			Percent Change From Existing		
	Existing (1982)	Mid- Term (1995)	Long Term (2015)	Existing (1982)	Mid- Term (1995)	Long- Term (2015)	Existing (1982)	Mid- Term (1995)	Long- Term (2015)
<b>MAJOR CAPITAL FACILITIES AND EQUIPMENT</b>									
Fire <sup>a</sup>									
Space (sq. ft.)	0	1,000	1,000	0	1,000	1,000			
Fire Trucks	0	1	1	0	1	1			
Water <sup>c</sup>									
Production/Treatment (mgd)	0	NF	NF	0	NF	NF			
Storage (mgd)	0	NF	NF	0	NF	NF			
Distribution (mgd)	0	NF	NF	0	NF	NF			
Sewer <sup>d</sup>									
Treatment (acres)	2	2	2	2	--	--			
Collection (mgd)	0.02	0.02	0.02	0.02	--	--			
Recreation <sup>e</sup>									
Parkland (acres)	NA	NF	NF	NA	NF	NF			

Source: Mountain West Research-North, Inc., 1982.

Notes: na = not applicable; NF = not forecast.

mgd = million gallons per day.

All mgd are rounded to the nearest one thousand gallons.

The "with-project" scenarios include: Young's Creek, CX level 1, CX level 2, Wolf Mountain, cumulative.

The projections for the baseline scenario are also appropriate for all with-project scenarios. Projections for facilities/services requirements in specific jurisdictions are either identical, or have minimal, insignificant variation among scenarios. Levels of variation in projections for the facilities/services requirements among scenarios do not create diverse, incremental requirements for personnel or capital facilities and equipment. The variations in the projections between the baseline scenario and the with-project scenarios that do occur are discussed in the text.

Changes in facilities/services requirements show no significant "peak year" trends and are therefore addressed in terms of "mid-term" (1995) and "long-term" (2015) to provide a clearer perspective on the magnitude and rate of change required.

TABLE 4.5.5.3-1 (cont.)  
Baseline Scenario for Facilities/Services Requirements for Selected Years  
St. Xavier (Unincorporated)  
Baseline and "With-Project" Scenarios  
1982, 1995, 2015

Facilities/Services	Total Requirements			Increase Over Existing (1982)			Percent Change From Existing		
	Existing (1982)	Mid- Term (1995)	Long Term (2015)	Existing (1982)	Mid- Term (1995)	Long- Term (2015)	Existing (1982)	Mid- Term (1995)	Long- Term (2015)

<sup>a</sup>Assumes a minimum requirement of one fire truck and appropriate space (sq. ft.). Fire trucks are assumed to be designed for structural fire protection.

<sup>b</sup>A base for calculation of the percentage changes is not available because the fire truck stationed at St. Xavier is designed for range and grass fire protection.

<sup>c</sup>Assumes the increase in population is insufficient and does not require change from the current system of individual water wells.

<sup>d</sup>Assumes a minimum requirement of one acre for sewer treatment per unit of 100 population.

<sup>e</sup>Assumes the increase in population is insignificant and does not require a change from the current informal recreation opportunities.

Sewer. The existing number of two sewer lagoons are expected to be adequate for mid-term and long-term needs. The sewer collection system, which has a capacity of approximately 0.02 mgd, would also be adequate for mid-term and long-term needs. (See Table 4.5.5.3-1.)

Recreation. St. Xavier has no formally dedicated recreation park lands. The increase in population does not require that the current conditions pertaining to recreation change in either the mid-term or long-term projections. Requirements for recreation have not been forecast for St. Xavier.

#### Facilities and services -- Ft. Smith

Overview. The magnitude of the increases in requirements for major capital facilities and equipment is insufficient to require that Ft. Smith change from its currently unincorporated status. As the population of Ft. Smith increases in the baseline scenario, there is an assumed requirement for one fire truck and accompanying space.

The population increases from approximately 180 in 1982 to 200 (11 percent) in the mid-term (1995) and 230 (28 percent) in the long-term (2015) projections (see Table 4.5.2.5-1.)

There is an assumed minimum requirement for one fire truck and associated space in the mid-term and long-term projections because the current fire truck available for the general public is provided by the U.S. Department of the Interior, Bureau of Reclamation. The water and sewer systems in Ft. Smith are privately owned and operated. The existing capacities of the water and sewer systems are expected to be adequate for mid-term and long-term projections. The requirements for water and sewer systems are not forecast because of their status in private ownership. Ft. Smith currently does not have any formally dedicated recreation park lands. The expected increase in population is insufficient to require that Ft. Smith change from its current conditions pertaining to recreation. The requirements for recreation park lands in Ft. Smith are not forecast.

The following sections present detailed information about capital facilities and equipment at Ft. Smith. The information is presented in terms of impacts measurable in the mid-term and long-term periods of projection.

Fire. Although the increase in population is insufficient to require that Ft. Smith change its currently unincorporated status, a minimum requirement of one fire truck and accompanying space is assumed for mid-term and long-term needs. The one fire truck and associated space represents a significant change because there is currently no fire protection equipment stationed in St. Xavier. (See Table 4.5.5.3-2.)

Water. The expected increase in population is insufficient to require change from the system of privately owned water systems in Ft. Smith. Projections of requirements for a water system are not forecast.

Sewer. The expected increase in population is insufficient to require change from the system of privately owned sewer systems in Ft. Smith. Projections of requirements for a sewer system are not forecast.

Recreation. Ft. Smith currently has no formally dedicated recreation park lands. The expected increase in population is insufficient to require that the current conditions pertaining to recreation



TABLE 4.5.5.3-2

Baseline Scenario for Facilities/Services Requirements for Selected Years  
 Ft. Smith (Unincorporated)  
 Baseline and "With-Project" Scenarios  
 1982, 1995, 2015

Facilities/Services	Total Requirements			Incremental Requirements			Incremental Percentage (%)	
	Existing (1982)	Mid- Term (1995)	Long Term (2015)	Mid- Term (1995)	Long- Term (2015)		Mid- Term (1995)	Long- Term (2015)
<b>MAJOR CAPITAL FACILITIES AND EQUIPMENT</b>								
Fire <sup>d</sup>								
Space (sq. ft.)	0	1,000	1,000		1,000		nab	nab
Fire Trucks	0	1	1		1		nab	nab
Water <sup>c</sup>								
Production/Treatment (mgd)	0	NF	NF	NF	NF		NF	NF
Storage (mgd)	0	NF	NF	NF	NF		NF	NF
Distribution (mgd)	0	NF	NF	NF	NF		NF	NF
Sewer <sup>c</sup>								
Treatment (acres)	0	NF	NF	NF	NF		NF	NF
Collection (mgd)	0	NF	NF	NF	NF		NF	NF
Recycled <sup>nd</sup>								
Park Land (acres)	NA	NF	NF	NF	NF		NF	NF

Sources: Mountain West Research-North, Inc., 1982.

Notes: na = not applicable, NA = not available, NF = not forecast.  
 mgd = million gallons per day.

The "with-project" scenarios include: Young's Creek, CX level 1, CX level 2, Wolf Mountain, cumulative. The projections for the baseline scenario are also appropriate for all with-project scenarios. Projections for facilities/services requirements in specific jurisdictions are either identical, or have minimal, insignificant variation among scenarios. Levels of variation in projections for the facilities/services requirements among scenarios do not create diverse, incremental requirements for personnel or capital facilities and equipment. The variations in the projections between the baseline scenario and the with-project scenarios that do occur are discussed in the text.

Changes in facilities/services requirements show no significant "peak year" trends and are therefore addressed in terms of "mid-term" (1995) and "long-term" (2015) to provide a clearer perspective on the magnitude and rate of change required.

TABLE 4.5.5.3-2 (cont.)

Baseline Scenario for Facilities/Services Requirements for Selected Years  
 Ft. Smith (Incorporated)  
 Baseline and "With-Project" Scenarios  
 1982, 1995, 2015

Facilities/Services	Total Requirements			Incremental Requirements			Incremental Percentage (%)		
	Existing (1982)	Mid- Term (1995)	Long Term (2015)	Mid- Term (1995)	Long- Term (2015)		Mid- Term (1995)	Long- Term (2015)	

<sup>a</sup>Assumes a minimum requirement of one fire truck and appropriate space (sq. ft.). Fire trucks are assumed to be designed for structural fire protection. Refer to section 3.4.5.3 for discussion about the fire truck that is available for fire protection services at Ft. Smith.

<sup>b</sup>A base for calculation of the percentage change is not available because fire trucks that are currently stationed at Ft.

Smith are owned and operated by the U.S. Department of the Interior, Bureau of Reclamation.

<sup>c</sup>Assumes the increase in population is insufficient to require changes from the current system of privately owned water and sewer systems.

<sup>d</sup>Assumes the increase in population is insignificant to require change from the current informal recreation opportunities.

change in either the mid-term or long-term projections. Requirements for recreation have not been forecast for Ft. Smith.

#### 4.5.6 West Area

##### 4.5.6.1 Introduction

This section presents the baseline forecasts for the west area of the Crow Indian Reservation. Section 4.5.6.2 presents baseline population and economic forecasts. Section 4.5.6.3 discusses facilities, services conditions in Pryor under the baseline scenario.

##### 4.5.6.2 Population and Economy

Tables 4.5.2.2-1 and 4.5.2.2-2 present the baseline population forecasts for Crow Indians and non-Indians in the west area of the Crow Reservation.

As shown in Table 4.5.2.2-1, the Crow Indian population of this area is forecast to increase from 459 people in 1980 to 554 people in 1990, a 21 percent increase. The Crow population is then forecast to grow by 13 percent during the 1990s and by 20 percent between 2000 and 2010. The forecast population of 821 in 2015 represents a 79 percent increase over the actual 1980 population. As noted in the employment forecasts in Appendix 3, total employment by place of residence for Crow Indians in the area is forecast to grow from 79 workers in 1980 to 81 workers in 1990. Employment is then forecast to grow to 87 workers in 2000 and 91 workers in 2010. Because employment is forecast to grow more slowly than population in the west area, it will serve to decrease the labor force participation rate and increase the unemployment rate over the forecast period.

As shown in Table 4.5.2.2-2, the non-Indian baseline population in the west area is forecast to remain stable at about 125 people through 2000 and then increase to 145 people by 2015. Non-Indian employment by place of residence in the area is forecast to increase slowly from 190 workers in 1980 to 201 workers in 2015.

##### 4.5.6.3 Other Topical Areas of Interest

#### Facilities and services -- Pryor

Overview. The expected increases in requirements for capital facilities and equipment is insufficient to require that Pryor change from its currently unincorporated status. The population increases from approximately 230 in 1982 to 270 (17 percent) in the mid-term (1995) and 330 (43 percent) in the long-term (2015) projections (see Table 4.5.2.5-1).

As the population of Pryor increases in the baseline scenario, there is an assumed minimum requirement for one fire truck and associated space in the mid-term and long-term projections. The existing water and sewer systems are expected to be adequate for mid-term and long-term needs. Pryor currently does not have formally dedicated recreation park lands. The expected increases in population are insufficient to require change from the existing conditions pertaining to recreation in either the mid-term or long-term projections.

The following sections present detailed information about capital facilities and equipment at Pryor. The information is presented in terms of impacts measurable in the mid-term and long-term periods of projection.

Fire. Although the expected increase in population is insufficient to require that Pryor change its currently unincorporated status, it is assumed that there will be a minimum requirement of one fire truck and accompanying space for mid-term and long-term needs. The one fire truck and associated space represent a significant change because there is no fire protection equipment stationed in Pryor. (See Table 4.5.6.3-1.)

Water. The existing capacities of approximately 0.05 mgd for the water production/treatment and distribution systems are expected to be adequate for mid-term and long-term needs. The existing water storage capacity of 0.18 mgd is also expected to be adequate for mid-term and long-term needs. (See Table 4.5.6.3-1.)

Sewer. The existing 12 acres of sewer lagoons and the sewer collection system, which has a capacity of approximately 0.05 mgd, are expected to be adequate for mid-term and long-term needs (see Table 4.5.6.3-1).

Recreation. Pryor currently has no formally dedicated recreation park lands. The expected increase in population is insufficient to require that the existing conditions pertaining to recreation change in either the mid-term or long-term projections. Requirements for recreation have not been forecast for Pryor.

The assumptions delineated in Section 2.3.4.5 also pertain to the KME forecasts. No further assumptions aside from those discussed in Section 4.2.1 (population and employment) were required for these forecasts/analyses.

#### 4.5.7 Off-Reservation Crow

For this discussion, please see the Socioeconomic Assessment Report prepared by the Crow Tribe. (AITS 1983.)

### 4.6 Northern Cheyenne Reservation

#### 4.6.1 Introduction

This section presents the baseline forecasts for the Northern Cheyenne Indian Reservation. Section 4.6.2 describes the population and economic baseline forecasts for the reservation as a whole, including both Big Horn and Rosebud counties. More detailed population and economic baseline forecasts for the Big Horn County portion of the reservation are presented in Appendix B. Because the proposed mines would not cause any in-migration to the reservation, detailed social, facilities/services, and fiscal forecasts are not presented here.

#### 4.6.2 Population and Economy

Table 4.6.2-1 presents the baseline population forecast for Northern Cheyenne Indians who live in the Big Horn County portion of the Northern Cheyenne Indian Reservation. As shown, total baseline population is forecast to increase from 822 people in 1980 to 1,000 people in 1990, an increase of 22 percent. The population is then forecast to increase by 18 percent during the 1990s and by 15 percent between 2000 and



TABLE 4.6.2-1  
Baseline Scenario Forecast  
Northern Cheyenne Population  
Big Horn County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	822	0	0	0	0	0
1981	837	23	7	0	0	15
1982	853	23	7	0	0	15
1983	872	26	7	0	0	18
1984	888	23	8	0	0	16
1985	904	24	8	0	0	16
1986	923	26	8	0	0	18
1987	943	28	8	0	0	20
1988	960	25	8	0	0	17
1989	981	29	9	0	0	20
1990	1000	27	9	0	0	18
1991	1017	26	9	0	0	17
1992	1035	27	10	0	0	18
1993	1055	30	10	0	0	20
1994	1073	27	10	0	0	17
1995	1092	29	10	0	0	19
2000	1180	29	12	0	0	17
2005	1255	29	13	0	0	10
2010	1358	32	14	0	0	29
2015	1482	35	16	0	0	124

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

2010. The forecast population of 1,482 in 2015 represents an 80 percent increase over the actual 1980 population.

Table 4.6.2-2 shows that the non-Indian population of the Big Horn County portion of the Northern Cheyenne Indian Reservation is forecast to remain relatively constant at about 200 people throughout the forecast period.

Table 4.6.2-3 presents baseline population, labor force, and employment forecasts for the whole Northern Cheyenne Indian Reservation, which includes parts of both Big Horn and Rosebud counties. As shown in the table, the Northern Cheyenne labor force is expected to grow slightly faster than the total population, causing the labor force participation rate to increase from 30.9 percent in 1980 to 36.4 percent in 2010. However, Northern Cheyenne employment is forecast to grow more slowly than both population and labor force, causing the unemployment rate to increase rapidly from 25.6 percent in 1980 to 51.4 percent by 1995 and then to drop to 48.5 percent by 2010.

#### 4.6.3 Other Topical Areas of Interest

##### 4.6.3.1 Housing

As shown in Table 4.6.3.1-1, Northern Cheyenne Indian housing demand in the Big Horn County portion of the Northern Cheyenne Indian Reservation is forecast to increase from the 1980 inventory of 217 units to 365 units in 2000, an increase of 68 percent. After 2000, demand is forecast to increase more slowly, rising to 487 people in 2015, or 33 percent increase over housing demand in 2000. This large increase is due to population growth and to the Northern Cheyenne Indians' desire to reduce crowded housing conditions. The supply response to this demand will depend on the construction capacity of local contractors and on the continued funding for housing construction by government sources.

### 4.7 Sheridan County and Communities

#### 4.7.1 Introduction

This section presents the baseline forecasts for Sheridan County and its communities. Section 4.7.2 presents the forecasts for Sheridan County as a whole. Section 4.7.3 discusses the forecasts for the city of Sheridan and the greater Sheridan area. Section 4.7.4 focuses on the forecasts for Ranchester, Dayton, and the surrounding area. Finally, Section 4.7.5 presents the baseline forecasts for the rest of Sheridan County.

Throughout this section, the level of detail presented is appropriate to the magnitude of potential impacts. The sections that focus on Sheridan, Ranchester, Dayton, and the surrounding areas present a full set of population, economic, social life, housing, facilities/service, and fiscal forecasts. However, because the level of impact in the rest of Sheridan County (which includes the southern portion of the county) is expected to be less significant, Section 4.7.5 focuses on the population and economic forecasts and covers other topical areas of interest only when warranted by the potential level of impact.

##### 4.7.2.1 Population and Economy

As shown in Table 4.7.2.1-1, Sheridan County's baseline population is forecast to increase from the 1980 census population of 25,040 persons to 28,769 persons in 1990, an increase of 15 percent. It should be noted that the 1,026-person, employment-related, in-migration figure is an adjustment made by the economic/demographic model to balance the 1980 census figure with the actual Sheridan County population in

TABLE 4.6.2-2  
Baseline Scenario Forecast  
Non-Indian Population  
Northern Cheyenne Reservation  
(Big Horn County)

Year	Population
1980	196
1981	196
1982	195
1983	194
1984	194
1985	194
1986	194
1987	194
1988	194
1989	194
1990	198
1991	198
1992	200
1993	200
1994	200
1995	200
1996	200
1997	200
1998	200
1999	200
2000	200
2005	199
2010	197
2015	NF

Source: Mountain West Research-North, Inc., 1982.

Note: NF = not forecast.



TABLE 4.6.2-3

Baseline Scenario Forecast  
 Northern Cheyenne Population, Labor Force, and Employment  
 Northern Cheyenne Reservation (including Rosebud County)

Year	Population	Labor Force	Labor Force Participation Rate (percent)	Employment	Unemployment Rate (percent)
1980	3,255	1,007	30.9	749	25.6
1985	3,583	1,156	32.3	897	22.4
1990	3,960	1,318	33.3	858	34.9
1995	4,324	1,514	35.0	881	41.8
2000	4,670	1,662	35.6	911	45.2
2005	4,985	1,795	36.0	948	47.2
2010	5,265	1,917	36.4	988	48.5
2015	NF	NF	NF	NF	NF

Source: Mountain West Research-North, Inc., 1982.

Note: NF = not forecast.

TABLE 4.6.3.1-1

Baseline Scenario Forecast  
Housing Demand  
Northern Cheyenne Indian Reservation  
(Big Horn County)

Year	Housing Demand (Units)
1980	217
1981	233
1982	226
1983	231
1984	235
1985	244
1986	251
1987	258
1988	266
1989	272
1990	282
1991	291
1992	296
1993	307
1994	312
1995	321
1996	330
1997	336
1998	346
1999	356
2000	365
2005	405
2010	446
2015	487

Source: Mountain West Research-North, Inc., 1982.

TABLE 4.7.2.1-1  
Baseline Scenario Forecast  
Population Change  
Sheridan County

Year	Total Population	Births	Deaths	Employment- Related Migration	Non-employment Related Migration	Total Change
1980	25040	0	0	0	0	0
1981	26197	435	210	1026	-93	1157
1982	26358	458	213	33	-116	161
1983	26469	445	212	0	-121	110
1984	26568	432	212	0	-119	99
1985	27145	418	210	480	-111	577
1986	27674	414	213	434	-105	529
1987	27979	409	214	218	-108	304
1988	28261	401	215	207	-112	281
1989	28479	391	217	158	-113	218
1990	28769	380	218	244	-115	290
1991	28821	371	219	18	-118	51
1992	29015	362	219	165	-112	194
1993	29150	362	221	107	-113	135
1994	29168	358	223	0	-117	17
1995	29386	347	223	214	-119	218
2000	29704	342	230	175	-124	162
2005	29517	350	228	353	-119	356
2010	31633	375	259	402	-108	410
2015	31507	373	258	-132	-109	-126

Source: Mountain West Research-North, Inc., 1982.

Notes: Details may not sum due to rounding.

All values except total population represent annual changes.

1981. In reality, most of these in-migrants were in the county in 1980. Between 1980 and 1990, 66 percent of the population growth is forecast to be a result of natural increase. The remaining 34 percent is forecast to be made up of net in-migration.

The rate of population growth after 1990 is forecast to decrease; the population increase over the period from 28,769 people in 1990 to 29,704 people in 2000 only represents a 3 percent increase. Over this period, the natural increase in population remains steady, but employment-related migration is expected to be sporadic, contributing heavily to population growth in some years and not at all in other years. The population is forecast to increase by 6 percent between 2000 and 2010, reaching 31,633 persons in 2010 and then declining slightly to 31,507 persons in 2015.

During the 1980s, total employment is forecast to grow from 12,934 persons in 1980 to 14,305 persons in 1990, an increase of 11 percent (see Table 4.7.2.1-2). During the early 1980s, declines in mining employment at the Decker, Spring Creek, and Absaloka mines caused total employment to decline slightly. However, as mining employment increases again in the mid-1980s, total employment would grow more rapidly. Total employment is forecast to grow by another 10 percent in the 1990s and by 7 percent between 2000 and 2010. Employment is then forecast to decline slightly between 2010 and 2015. Over the thirty-five-year forecast period, all sectors but agricultural proprietors, mining, and construction are either forecast to remain constant or increase steadily. The agricultural proprietor decrease is limited to 30 persons, or less than one person per year. The decline in mining is due primarily to the closure of the Decker Mine after 2000. The decline in construction employment is an anomaly due to the high level of construction in 1980. Construction employment is actually forecast to increase steadily between 1981 and 2015.

As shown in Table 4.7.2.1-3, which separates the employment forecast into its basic and nonbasic components, basic employment is forecast to decrease between 1980 and 1983. This decrease can be attributed primarily to reductions in the construction and operating work forces at local mines. After 1983, when basic employment is forecast to be 5,499 persons, basic employment increases steadily to 7,937 persons in 2010, which represents a 44 percent increase over the 1983 level. After 2010, basic employment is forecast to decrease slowly to 7,905 persons by 2015.

Nonbasic employment is forecast to grow more slowly, increasing from 6,925 persons in 1983 to 6,889 persons in 2010, a 28 percent increase. The increase in nonbasic sector employment is spread throughout all sectors but agriculture and mining.

When combined, the basic and nonbasic employment growth rates would cause the ratio of nonbasic to basic jobs to decrease from 125 to 100 in 1980 to 112 to 100 by 2015. This change can be attributed to the fact that whereas, in 1980, nonbasic activity was more dependent on expenditures from highly paid mining and construction workers, in 2015, it is forecast to be more dependent on less well paid basic trade and service workers' expenditures.

As Table 4.7.2.1-4 shows, total personal income (in constant terms) is forecast to decline between 1980 and 1983 but then to increase from \$272.3 million in 1984 to about \$356.6 million in 2015. Real personal per capita income is forecast to increase from a forecast period low of \$9,925 in 1983 to \$11,320 in 2015, an average annual increase of 0.4 percent between 1980 and 2015 (from 1983 to 2015 the rate is 0.8 percent).

Sheridan County's population is currently concentrated in the city of Sheridan, the greater Sheridan area, Ranchester, Dayton, and other rural areas throughout the county. The following sections present the baseline forecasts for each of these areas.

TABLE 4.7.2.1-2  
Baseline Scenario Forecast  
Total Employment by Sector  
Sheridan County

Year	Ag Propri- etors	Ag Labor	Mining	Con- struc- tion	Manu- factu- ring	TCPU	Trade	FIRE	Ser- vices	Gov- ern- ment	Other +com.	Total
1980	509	440	1151	1612	523	503	2814	500	2314	2464	104	12934
1981	509	440	1159	1347	519	510	2802	495	2311	2420	104	12616
1982	509	440	1044	1330	518	536	2809	493	2322	2403	104	12510
1983	509	440	943	1317	519	543	2824	491	2338	2393	104	12425
1984	509	440	1077	1319	537	596	2913	499	2402	2471	104	12869
1985	509	440	1209	1331	553	613	2996	507	2464	2543	104	13272
1986	508	440	1273	1338	566	637	3066	512	2515	2595	104	13556
1987	507	440	1304	1345	576	646	3125	516	2564	2640	104	13770
1988	506	440	1319	1350	585	653	3177	520	2609	2676	104	13941
1989	505	440	1343	1354	593	660	3228	523	2652	2712	104	14118
1990	504	440	1359	1360	603	668	3286	527	2701	2750	104	14305
1991	503	440	1358	1363	609	661	3329	529	2742	2775	104	14416
1992	502	440	1355	1367	617	667	3381	532	2788	2808	104	14565
1993	501	440	1352	1370	624	673	3430	534	2831	2833	104	14696
1994	500	440	1325	1372	631	678	3475	536	2873	2854	104	14792
1995	499	440	1343	1376	640	685	3536	540	2926	2894	104	14988
2000	494	440	1279	1397	677	681	3814	553	3180	3050	104	15673
2005	489	440	824	1358	703	698	4008	549	3392	3131	104	15696
2010	484	439	731	1433	742	729	4433	561	3771	3379	104	16826
2015	475	439	181	1429	756	740	4633	585	3976	3437	104	16759

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 4.7.2.1-3  
Baseline Scenario Forecast  
Employment by Type  
Sheridan County

Year	Total	Non Basic	Basic Total	Basic Non Project	Indirect Basic	Basic Project O&M	Project Construc- tion-Perm	Project Construc- tion-NLoc.
1980	12934	7206	5725	4297	51	1014	92	268
1981	12618	7061	5557	4465	53	1022	4	12
1982	12510	6981	5528	4567	55	905	0	0
1983	12425	6925	5499	4637	58	803	0	0
1984	12869	7125	5744	4737	71	935	0	0
1985	13272	7312	5959	4815	78	1066	0	0
1986	13556	7432	6124	4904	90	1129	0	0
1987	13770	7539	6231	4981	90	1159	0	0
1988	13941	7616	6323	5061	90	1172	0	0
1989	14118	7693	6425	5141	89	1194	0	0
1990	14305	7780	6524	5224	91	1208	0	0
1991	14416	7825	6591	5296	86	1206	0	0
1992	14565	7891	6674	5386	85	1201	0	0
1993	14696	7935	6761	5477	86	1197	0	0
1994	14792	7964	6827	5571	86	1169	0	0
1995	14988	8052	6935	5664	85	1186	0	0
2000	15673	8339	7334	6149	71	1113	0	0
2005	15696	8292	7404	6730	24	650	0	0
2010	16826	8889	7937	7371	16	550	0	0
2015	16759	8854	7905	7905	0	0	0	0

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

TABLE 4.7.2.1-4  
Baseline Scenario Forecast  
Personal Income  
Sheridan County  
(1980 \$000)

Year	Total Labor Income	FICA Payments Payments	Non-labor Income	Residency Adjustment	Total Personal Income	Personal Income Per Capita
1980	183035	8342	103881	1	278575	11125
1981	175762	8011	102496	1	270249	10316
1982	171928	7836	102019	1	266112	10095
1983	168597	7684	101797	1	262711	9925
1984	177163	8075	103268	1	272359	10251
1985	184649	8416	104592	1	280827	10345
1986	189607	8642	105613	1	286581	10355
1987	192864	8790	106563	1	290639	10387
1988	195246	8899	107273	1	293621	10389
1989	197674	9019	107713	1	296570	10413
1990	200338	9131	108421	1	299630	10414
1991	201503	9184	108634	1	300955	10442
1992	203216	9262	108892	1	302848	10437
1993	204661	9328	108775	1	304110	10432
1994	205177	9352	108735	1	304563	10441
1995	207897	9475	109137	1	307560	10466
2000	214166	9761	111996	1	316403	10651
2005	212768	9702	119622	1	322688	10932
2010	226479	10327	131486	1	347638	10990
2015	225578	10286	141373	1	356665	11320

Source: Mountain West Research-North, Inc., 1982.

Note: Details may not sum due to rounding.

#### Commercial opportunities

As shown in Table 4.7.2.1-5, the number of commercial opportunities implied by the threshold analysis is greater than the actual number of establishments in 1982. Commercial opportunities in 1982 total 527, 104 above the 423 actual establishments. This difference suggests that entrepreneurs have not yet taken full advantage of the existing commercial opportunities in Sheridan County or that the threshold analysis has overstated the actual number of commercial opportunities.

Under the baseline scenario, commercial opportunities are forecast to increase by 46 establishments between 1980 and 1990 and by another 19 establishments between 1990 and 2000. In 2000, the 592 commercial opportunities would be 12 percent above the 527 opportunities that existed in 1982.

#### 4.7.2.2 Social Life and Cultural Diversity

As discussed above, Sheridan County's population is forecast to grow continuously throughout the forecast period. By 2015, the population is forecast to reach 31,507 persons, an increase of about 26 percent over 1980 levels. As shown in Table 4.7.2.2-1, the increase is forecast to be about 14.6 percent over the decade of the 1980s, about 3.8 percent over the decade of the 1990s and, after a period of slight decline in the early years of the new century, to increase rapidly again between 2005 and 2010. As discussed in sections 3.2.5 and 3.6.2.2, this represents a continuation of the energy-based growth that was initiated during the 1970s. It is the first sustained growth the area has experienced since the 1920s.

For this reason, rather than its absolute magnitude, the growth in population and economic opportunities will be important to the county and to the region. The total population increase between 1980 and 2015 is forecast to be 6,467 persons, 11.3 percent fewer than the increase (7,196 persons) that occurred between 1970 and 1980. Since this growth would occur on a substantially larger base than did the increase of the 1970s and will occur more gradually -- over a period of thirty-five rather than ten years -- its effects will be more subtle and less stressful. However, this sustained growth is likely to be more far-reaching in its implications for social organization and perceptions of community than the growth of the 1970s. Certainly it can be expected to yield a different, more growth-oriented perspective among the population than emerged as the community coped with the continuing population and economic decline of the pre-1970 period.

As a result of the forecast growth, the county's demographic characteristics will certainly change, since the current structure reflects the continuous out-migration of working-age adults for several decades and the continued influx of retirees of the pre-1970 period and the rapid influx of population during the 1970s. If previous trends hold, the county should remain fairly homogeneous in terms of race and ethnicity. There may be small increases in the percentage of nonwhites in the population, but the percentage should remain small. The percent urban is also projected to remain stable and is unlikely to deviate greatly from the current level of about 61 percent.

Changes are expected to occur, however, in the age structure of the population, as new migrants of working age and with smaller children continue to be attracted to the county for employment and residence. This change will result in an increasing emphasis on the provision of goods and services targeted to families and young adults and be accompanied by changes in the patterns of social and political influence, although national trends will probably serve to buttress the importance of the elderly. It is also likely that national trends in housing and fertility will be followed, resulting in a continued decline in average household size. However, it should be noted that forecasts about such behaviors as fertility and household formation are notoriously insensitive to changes in trends and norms.

Since most of the growth during the baseline period is forecast to occur in the city of Sheridan or its immediate vicinity, Sheridan will continue its dominant role in the county and the region. Both



TABLE 4.7.2.1-5

Commercial Opportunities  
Baseline Scenario  
Sheridan County, Wyoming  
1982, 1990, 2000

Type of Commercial Opportunity	Existing Establishments	Commercial Opportunities		
	1982	1982	1990	2000
<u>Retail</u>				
Gasoline Service Station	24	43	47	49
Eating and Drinking Place	43	60	65	67
Grocery and Other Food Store	16	20	22	23
Motor Vehicle Dealers and Auto Supply Store	17	18	19	20
Clothing and Shoe Store	16	16	17	18
Lumber, Hardware, and Mobile Home Dealer	11	20	21	21
Furniture and Household Appliance Store	11	14	15	15
Department Store	5	4	4	4
Drug, Variety, General Merchandise Store	14	24	26	27
Sporting Goods, Hobby, Flowers, Gift, Sewing Store	17	22	24	25
Liquor Store	9	9	10	11
Jewelry Store	3	7	7	8
Book Store and Newstand	4	2	3	3
<u>Service</u>				
Hotel, Motel, Commercial Campground	28	48	52	54
Beauty and Barber Shop	31	27	30	31
Auto Repair Shop	31	27	29	30
Legal, Accounting, Advertising, Data Processing	37	49	54	56
Engineering, Architecture, Surveying	20	12	13	13
Equipment and Auto Renting and Leasing	6	8	9	9
Laundries	6	9	10	10
Appliance, Furniture, and Shoe Repair	11	12	13	14
Movie Theatre and Bowling Alley	3	7	8	8
Janitorial Service	2	11	12	12
Photographic Studio	4	6	6	6
Car Washes	1	4	4	4
Funeral Services	2	2	2	2
<u>Finance and Real Estate</u>				
Real Estate Office	16	23	25	26
Insurance Agencies	26	11	12	12
Personal Credit Institution	1	6	7	7
Commercial Bank	5	5	6	6
Savings and Loan Association	3	1	1	1
TOTAL	423	527	573	592

Source: Mountain West Research-North, Inc., 1982.

Note: Population for these years are: 1982: 26,356; 1990: 28,769; 2000: 29,704.

TABLE 4.7.2.2-1

Population Growth and Percentage Growth  
Sheridan County  
1980-2015

Year	Population Size	Percentage Change
1980	25,040	
1985	27,145	8.4
1990	28,769	6.0
1995	29,386	2.1
2000	29,704	1.1
2005	29,517	-0.6
2010	31,633	7.2
2015	31,507	-0.4

Source: Mountain West Research-North, Inc., 1982.

county commissioners and the county planning office have taken the position that new growth should be limited to areas adjacent to those currently developed. The city has shown a tendency to annex areas of the county that are adjacent to those currently developed. If these plans can be maintained and strengthened, the county will not experience the geographic sprawl that can increase service costs and diminish social interaction among residents. Nevertheless, a portion of the incoming and growing population will undoubtedly elect to live in the smaller towns, unincorporated areas, and rural environs of the county (see sections 4.2.1, 4.2.3, 4.3.2, 4.3.4, 4.7.2.1, and 4.7.2.3). This increased population would complicate county political organization and coordination and is likely to exaggerate the population's effects on the ranchers and rural residents.

As the county's economy is revitalized, agriculture will once again diminish in importance, both as a source of employment and income and as a social orientation and lifestyle symbol. Long-time residents of the county will undoubtedly be concerned and unhappy about some of these changes, as they will represent the diminution of many social practices and traditions that have acquired significance to many.

While not overlooking the change in perspective that sustained growth would cause, it is also important not to overlook the importance of the county's experience with growth and with forecasts of growth during the 1970s and with the downturn, rather than increase, in mining activities that occurred during the early 1980s. Many county residents are justifiably skeptical about growth forecasts and about the wisdom of placing much confidence in a single-industry economy, especially one as volatile as coal.

Community and county leaders are becoming more adamant in their conviction that a stable and prosperous economy and a sound community need diversification. They are particularly sensitive to the needs for economic diversification, but there are indications that an appreciation of the need for social and political diversity is also spreading and will become increasingly dominant if the county continues to grow over the next decade. The Sheridan Community College is likely to take on even greater importance as a key institution for dealing with and aiding these types of diversification and for increasing the county's competitive position. County government and business leaders are likely to be pressed to be aggressive, imaginative, and energetic in implementing and controlling diversification.

While the long-established structures and traditions of the area will not soon be abandoned, they will be meshed with those that emerge from the county's interaction with new activities and residents. The experience of the county during the 1970-1980 period has put in place many of the mechanisms necessary to handle growth and has given residents an increased awareness that new issues need consideration. Although the baseline period extends for thirty-five years into the future, the experience of the past is not likely to be forgotten. Rather, it will be used as the basis for developing the responses of the future.

#### 4.7.2.3 Housing

As shown in Table 4.7.2.3-1, baseline housing demand in Sheridan County is forecast to grow from 10,457 units in 1980 to 14,232 units in 2000, a 36 percent increase or an average annual increase of 1.5 percent. Local builders who are capable of constructing 500 units/year should be able to meet baseline demand in all years but 1981, when a 2-unit deficit is forecast to occur.

After 2000, the rate of increase in housing demand is forecast to be slow. Housing demand is forecast to grow by an average of 57 units/year between 2000 and 2015, a rate of growth that could easily be met by local builders.

#### 4.7.2.4 Facilities and Services

Projections of facilities and services for Sheridan County will be discussed by functional area.

TABLE 4.7.2.3-1  
Housing Unit Demand/Supply  
Baseline Scenario  
Sheridan County

Year	Total Demand	Incremental Demand Over Previous Year	Local Supply Response (Limit = 500)	Cumulative (Deficit) Surplus
1980	10,457			
1981	10,959	502	500	(2)
1982	11,041	82	84	0
1983	11,135	94	94	0
1984	11,227	92	92	0
1985	11,545	318	318	0
1986	11,823	278	278	0
1987	11,976	153	153	0
1988	12,187	211	211	0
1989	12,357	210	210	0
1990	12,637	240	240	0
1991	12,760	123	123	0
1992	12,940	180	180	0
1993	13,099	159	159	0
1994	13,232	133	133	0
1995	13,457	225	225	0
1996	13,629	172	172	0
1997	13,726	97	97	0
1998	13,860	134	134	0
1999	14,018	158	158	0
2000	14,232	214	214	0
2005	14,142	-90 for 5 yrs	0 for 5 yrs	0
2010	15,156	1014 for 5 yrs	924 for 5 yrs	0
2015	15,095	-61 for 5 yrs	0 for 5 yrs	0

Source: Mountain West Research-North, Inc., 1982.

### General government

In response to a steady but modest growth over the projection period, impact in the baseline case on general government services is anticipated to be minimal in Sheridan County. The new county courthouse, completed in 1982, coupled with the renovation of the existing county courthouse, scheduled in 1983, is expected to adequately serve the additional growth in Sheridan County. Table 4.7.2.4-1 supports these conclusions.

### Engineering and planning

This county department has responsibility for roads and bridges, permitting septic tanks for single-family dwellings, and planning. The major deficiency is that the majority of the bridges in Sheridan County need repair or replacement. It is difficult to develop a cost estimate for accomplishing this repair/replacement program because of the unique features of each bridge, but it is necessary to meet baseline needs. A prioritized replacement program was initiated in 1982. Projections show a need for 27,423 sq. ft. of shop space for Sheridan County. This reflects the existing under-capacity based on the planning standard of 1.3 sq. ft. per person. Other functions are anticipated to continue increasing steadily in response to the growing population and projected expenditures.

### Sheriff

The combined county and city law enforcement facility, completed in 1982, is expected to be able to conveniently absorb the increase in demand for services associated with the baseline projection. The city of Sheridan provides its own law enforcement service; the county sheriff's department mainly provides services to citizens of other areas in the county. Expected growth in the county, excluding the city of Sheridan, is forecast to be about 2,400 people between 1980 and 2010. As shown in Table 4.7.2.4-2, the current staff levels require modest increases to accommodate the projected additional population. This conclusion is supported by the modest rate in growth of projected expenditures over the next thirty-four years.

### Fire

There are currently no plans to expand fire services. Projections based on a planning standard of 0.5 sq. ft. of space per capita indicate that an additional 2,000 sq. ft. would be needed by 2001 at a total cost of \$104,000 (see Table 4.7.2.4-1).

### Hospital

The Sheridan County Memorial Hospital has an expansion project in process that will be completed in 1984. The current occupancy rate is 55 percent. The baseline projection indicates the need for four additional hospital beds by the year 2002: two in 1996 and two in 2002. Projected capital costs are \$139,000 in 1996 and \$153,000 in 2002.

### Social Services

Under the baseline scenario, the Sheridan County Division of Public Assistance and Social Services would need to increase its staff from the current level of 13 persons to 14.7 persons in 1995 and 15.7 persons in 2015 (based on the 1982 ratio of .0005 staff persons per capita). Based on a space standard of

TABLE 4.7.2.4-1

Summary of Facility Requirements  
 Baseline Projections  
 Sheridan County  
 1983-2002

Year	Facility	Change in Capacity (sq. ft.)	Capital Outlay (1982 \$000)
1983	General Administration	53,670	\$5,000 <sup>a</sup>
1983	Shop	27,423	1,097
1985	Fire	1,007	57 <sup>b</sup>
1990	Shop	1,319	53 <sup>b</sup>
1993	Fire	345	20 <sup>b</sup>
1997	Shop	660	26 <sup>b</sup>
2001	Fire	477	27 <sup>b</sup>
2002	Shop	855	34 <sup>b</sup>

Source: B.Y. Analytics, 1983.

<sup>a</sup>Planned expansion.

<sup>b</sup>Occurs in previous year.

TABLE 4.7.2.4-2  
Manpower Requirements and Law Enforcement Vehicles  
Baseline Projections  
Sheridan County  
1982-2015

Year	Sworn Officers	Nonsworn Law Enforcement Personnel	Fire- Fighting Personnel	Other Government Personnel <sup>a</sup>	Law Enforcement Vehicles
1982	10	10	4	123	4
1983	11	11	4	121	4
1984	11	11	4	121	4
1985	11	11	4	124	4
1990	12	12	4	131	4
1995	12	12	4	134	4
2000	12	12	4	135	4
2005	12	12	4	135	4
2010	13	13	5	144	5
2015	13	13	5	144	5

Source: B.Y. Analytics, 1983.

<sup>a</sup>Includes personnel in the treasurer, clerk, planning, fairgrounds, county commission, assessor and health/social services offices.

.1 sq. ft. per capita, space requirements would be 2,939 sq. ft. in 1995 and 3,151 sq. ft. in 2015. However, if the 1982 space ratio is to be maintained (.1289 sq. ft. per capita) then the current 3,400 sq. ft. of space would need to be expanded to 3,787 sq. ft. in 1995 and 4,061 sq. ft. in 2015.

#### Library

Plans to add 10,000 sq. ft. of library space to the existing 13,700 sq. ft. main library in Sheridan are under way. Branch libraries are located in Ranchester, Story, and Clearmont. The library service, personnel, and materials will expand with the planned facility. The system adequately serves the existing population and with the planned expansion would easily accommodate a modest growth in population.

#### Recreation and parks

The county does not operate a park and recreation department; it does support the county fairgrounds. The fairgrounds need expansion and relocation, and growth will exacerbate the existing condition.

#### 4.7.2.5 Fiscal

This section presents the baseline projections of fiscal conditions for Sheridan County and Sheridan County Memorial Hospital. Only the fiscal balance summaries are presented for each jurisdiction. However, complete projections of revenues and expenditures are contained in Appendix C.

#### Sheridan County

Table 4.7.2.5-1 shows the baseline projection fiscal summary for Sheridan County. As indicated in the table, the annual fiscal balance is negative for each year of the projection period.

As indicated in the footnote of the table, the negative balances largely reflect the county's dependence on inelastic revenue sources (such as property taxes, which are not very responsive to changes in population), the assumption that all expenditures budgeted in FY 1983 will occur (which will likely not be the case and may result in an overstatement of projected expenditures), and the exclusion of all non-scheduled revenue sources such as state or federal grants. In 1983, the expected fiscal balance is negative \$7.5 million and reflects sizeable outlays for the new courthouse and additions to county shop capacity. The remaining years of the projection period show negative annual balances of approximately \$1.5 to \$1.8 million; by 2005, the cumulative negative balance would be about \$43.2 million. Although such large deficits would not actually occur, these forecasts do indicate the type of problems facing county officials and residents as they plan for the future.

#### Sheridan County Memorial Hospital

Table 4.7.2.5-2 shows the baseline projection fiscal summary for the hospital. As shown in the table, the annual fiscal balances are only slightly negative when projected through 2015. Because the hospital's major revenue source is patient fees, changes in revenues respond quickly to changes in population.

Not shown in the table are capital outlays, which occur in 1996 and 2002 for an expansion of four beds. The capital costs associated with the additional beds are \$139,000 in 1996 and \$153,000 in 2002.



TABLE 4.7.2.5-1

Fiscal Summary for Sheridan County  
Baseline Projection  
1982-2015  
(1982 \$000)

Fiscal Summary	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015
Revenues Total	7,306	4,327	4,335	4,382	4,425	4,449	4,398	4,416	4,440	4,489	4,515	4,500	4,671	4,660
Expenditures														
O & M	5,791	4,916	4,933	5,030	5,119	5,170	5,218	5,255	5,304	5,408	5,461	5,430	5,786	5,765
Capital	1,387	6,827	787	730	730	730	730	783	730	730	757	730	730	730
Debt Payment	126	74	74	74	74	74								
Total	7,306	11,816	5,794	5,833	5,923	5,974	5,948	6,037	6,034	6,138	6,218	6,160	6,516	6,495
Fiscal Balance														
Annual	-7,489	-1,458	-1,451	-1,498	-1,525	-1,549	-1,621	-1,594	-1,648	-1,703	-1,660	-1,660	-1,846	-1,835
Cumulative	-7,489	-8,947	-10,399	-11,897	-13,421	-14,971	-16,592	-18,185	-26,325	-34,690	-43,204		NF	NF

Source: B.Y. Analytics, 1983.

Notes: Details may not sum due to rounding.

NF = not forecast.

Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.

The large net deficits shown in this table result from the methodology used (see Section 2.3.4.4...). In actuality, such deficits would not be allowed to occur -- government officials would either find additional sources of revenues and/or reduce expenditures.

TABLE 4.7.2.5-2

Fiscal Summary for Memorial Hospital of Sheridan County  
Baseline Projection  
1982-2015  
(1982 \$000)

Fiscal Summary	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015
Revenues Total	7,874	7,673	7,701	7,866	8,018	8,105	8,186	8,248	8,331	8,508	8,599	8,545	9,151	9,115
Expenditures														
O & M	7,606	7,456	7,484	7,647	7,796	7,882	7,961	8,023	8,104	8,278	8,368	8,315	8,911	8,876
Capital	268	270	270	270	270	270	270	270	270	270	270	270	270	270
Debt Payment														
Total	7,874	7,726	7,754	7,917	8,066	8,152	8,231	8,293	8,374	8,548	8,638	8,585	9,181	9,146
Fiscal Balance														
Annual	-54	-54	-53	-50	-48	-47	-45	-44	-43	-40	-39	-40	-30	-30
Cumulative	-54	-54	-107	-157	-205	-252	-297	-342	-385	-592	-928	-1,270	NF	NF

Source: B.Y. Analytics, 1983.

Notes: Details may not sum due to rounding.

Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.

#### 4.7.2.6 Schools -- Facilities/Services and Fiscal

This section discusses both facilities/services and fiscal projections for School District No. 1 and School District No. 2 in Sheridan County.

##### School District No. 1

School District No. 1 covers the western portion of Sheridan County with most facilities in Ranchester and Dayton. Based on the student space requirement standards reported in Section 2.3.4, the current, total space capacities are projected as adequate through 2015 for elementary and high schools.

The projected requirement for teachers increases to 100 in 1988 (from 92 currently) and then declines to 72 in 2015. The projection of support personnel increases to 53 in 1988 (from 49 at present) and then declines to 39 in 2015.

Table 4.7.2.6-1 shows the fiscal summary for the baseline projection. The data show negative annual fiscal balances projected through 2000. However, beginning in 2005, declining enrollment is projected to lower total operating costs sufficiently to generate slight positive balances.

##### School District No. 2

The baseline projection indicates the need to build additional junior and senior high capacity by 1985. Current capacity in the elementary system is projected as adequate through the year 2015. The additional capacity requirements are 17,123 sq. ft. per high school and 5,206 sq. ft. per junior high school. The capital costs, projected to occur in 1984, are \$1,164,000 and \$354,000 for high school and junior high schools, respectively.

Table 4.7.2.6-2 shows the projected demand for teachers and support personnel. By 1990, the demand for teachers is projected to reach 371, an increase of 52 over the 1982 level, and then decrease to 310 by 2015. The projected trend for support personnel is similar, reaching 195 in 1990 and then declining to 162 by 2015.

Table 4.7.2.6-3 shows the fiscal balance summary for Sheridan County School District No. 2. As shown in the table, the annual fiscal balance is negative in each year of the projection. The negative balance is largest in 1984 (\$2.2 million) due to projected additions to junior and senior high school capacities. The negative balances reflect the district's primary dependence on property taxes, which are relatively inelastic with changes in population. The negative balances also reflect the assumption that all expenditures budgeted for FY 1982-83 will occur and that there will be no cash carry-forward in future years.

#### 4.7.3 Sheridan and Area

##### 4.7.3.1 Introduction

This section presents the baseline forecasts for the city of Sheridan and the greater Sheridan area. Section 4.7.3.2 presents the population and economic forecasts for each area. Section 4.7.3.3 discusses social life in Sheridan and the Sheridan area under baseline conditions. The housing forecasts are presented in Section 4.7.3.4. Facilities/services and fiscal forecasts are presented in sections 4.7.3.5 and 4.7.3.6, respectively.

TABLE 4.7.2.6-1

Fiscal Summary for Sheridan County School District No. 1  
Baseline Projection  
1982-2015  
(1982 \$000)

Fiscal Summary	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015
Revenues Total	10,205	4,118	4,078	4,137	4,228	4,311	4,345	4,365	4,364	4,278	3,973	3,144	3,201	3,179
Expenditures														
O & M	3,980	4,017	3,966	4,038	4,156	4,265	4,309	4,335	4,333	4,224	3,830	3,085	3,153	3,134
Capital	5,987													
Debt Payment	253	253	253	253	253	253	253	253	253	253	253			
Total	10,220	4,271	4,220	4,291	4,409	4,519	4,562	4,589	4,587	4,477	4,083	3,085	3,153	3,134
Fiscal Balance														
Annual		-153	-141	-154	-182	-207	-217	-224	-223	-199	-110	59	49	45
Cumulative		-153	-294	-448	-630	-838	-1,055	-1,279	-1,502	-2,567	-3,316	-3,457	NF	NF

Source: B.V. Analytics, 1983.

Notes: Details may not sum due to rounding.

Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.

TABLE 4.7.2.6-2  
 Teachers and Support Personnel  
 Sheridan County School District No. 2  
 Baseline Projections  
 1982-2015

Year	Teachers	Support Personnel
1982	319	167
1983	318	167
1984	323	169
1985	338	177
1990	371	195
1995	368	193
2000	330	173
2005	293	153
2010	310	162
2015	310	162

Source: B.Y. Analytics, 1983.

TABLE 4.7.2.6-3

Fiscal Summary for Sheridan County School District No. 2  
Baseline Forecast  
1982-2015  
(1982 \$'000)

Fiscal Summary	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015
Revenues Total	15,537	14,030	14,104	14,492	14,871	14,998	15,169	15,275	15,407	15,085	13,860	12,890	13,415	13,404
Expenditures														
O & M	14,420	14,388	14,581	15,284	15,902	16,100	16,377	16,544	16,752	16,597	14,903	13,255	14,007	13,997
Capital	484		1,164	354						266				
Debt Payment	609	609	568	526	526	526	526	526	526					
Total	15,513	14,997	16,313	16,164	16,428	16,626	16,903	17,070	17,278	16,863	14,903	13,255	14,007	13,997
Fiscal Balance														
Annual		-967	-2,209	-1,672	-1,557	-1,628	-1,734	-1,795	-1,871					
Cumulative		-967	-3,176	-4,848	-6,405	-8,033	-9,767	-11,562	-13,433	-1,778	-1,043	-365	-592	-593
										-23,494	-30,729	-34,619	NF	NF

Source: B.Y. Analytics, 1983.

Notes: Details may not sum due to rounding.

NF = not forecast.

Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.

The large net deficits shown in this table result from the methodology used (see Section 2.3.4...). In actuality, such deficits would not be allowed to occur -- government officials would either find additional sources of revenues and/or reduce expenditures.

#### 4.7.3.2 Population and Economy

As shown in Table 4.7.3.2-1, the city of Sheridan's baseline population is forecast to grow from 15,139 people in 1980 to 17,427 people in 1990, an increase of 15 percent. Sheridan's population is then forecast to grow more slowly, increasing by 4 percent during the 1990s and by 7 percent between 2000 and 2010. The city's forecast population in 2015 of 19,219 people represents a 27 percent increase over the actual 1980 population level.

As noted in Appendix B, the city of Sheridan's employment by place of residence is forecast to decrease slightly between 1980 and 1983 but then to increase steadily through 2000, when the employment level of 9,851 workers would be 24 percent above the actual 1980 level of 7,961 workers.

As shown in Table 4.7.3.2-1, the greater Sheridan area's baseline population is forecast to grow from 5,016 people in 1980 to 5,815 people in 1990, an increase of 16 percent. The area's population is then forecast to grow more slowly, increasing by 3 percent during the 1990s and by 5 percent between 2000 and 2010. The area's forecast population in 2015 of 6,301 people represents a 26 percent increase over the actual 1980 population level.

As noted in Appendix B, the greater Sheridan area's employment by place of residence is forecast to decrease slightly between 1980 and 1983 but then to increase steadily through 2000, when the employment level of 2,825 workers would be 22 percent above the actual 1980 level of 2,320 workers.

#### 4.7.3.3 Social Life and Cultural Diversity

The projected populations for the city of Sheridan and the greater Sheridan area are discussed in Section 4.7.3.2 and shown in Table 4.7.3.2-1. In this discussion, the greater Sheridan area is made up of the city of Sheridan plus the immediately surrounding area. It includes Big Horn, but excludes Ranchester and Dayton.

As can be seen, the projected growth of the two areas is very similar. Overall, between 1980 and 2015, Sheridan is projected to grow by about 27 percent. The greater Sheridan area, exclusive of the city, is projected to grow by about 26 percent.

The total population increase between 1980 and 2015 is 4,080 persons, 210 persons fewer than the population growth that occurred during the 1970-1980 period. The increase in the greater Sheridan area, exclusive of the city, is projected to be 1,285 persons over the thirty-five-year period. This growth in population is likely to cause the trends in the 1970-1980 period to continue, although at a less frenetic pace. Sheridan will become and will be perceived as less and less a retirement community as the percentage of the population sixty-five years and over steadily decreases. As residents become accustomed to the slower growth and altered demographic characteristics, the processes of adjustment will take on a more leisurely tone, and change will cease to command as much attention as it did in the 1975-1982 period.

The population and employment growth will probably result in a small increase in racial diversity of the community as more American Indians, and perhaps some additional Asian, black, and Spanish surname peoples locate in Sheridan and the immediate area. (It should be noted that these types of residential and employment changes are difficult to predict since they are highly dependent upon individual/family decisions.) It is not expected that the "nonwhite" percentage of Sheridan's population will increase substantially, but rather that increasing diversity may be expected.

The changes in population structure are expected to be slow and will therefore not seem to residents to be abrupt or drastic. The rate of growth should be small enough that it will not cause any undue stress on the community's ability to accommodate and assimilate the newcomers. Based on the community's

TABLE 4.7.3.2-1

Population Forecast  
Baseline Scenario  
Sheridan County and Allocation Areas  
1980-2015

Year	Sheridan County	Sheridan City	Greater Sheridan Area <sup>a</sup>	Ranchester- Dayton Area	Rest of County
1980	25,040	15,139	5,016	1,841	3,042
1981	26,197	15,709	5,295	1,893	3,299
1982	26,358	15,795	5,339	1,906	3,317
1983	26,469	15,853	5,370	1,919	3,325
1984	26,568	15,903	5,397	1,933	3,333
1985	27,145	16,320	5,488	1,978	3,358
1986	27,674	16,706	5,584	2,002	3,380
1987	27,979	16,893	5,660	2,028	3,396
1988	28,261	17,077	5,721	2,049	3,411
1989	28,479	17,216	5,774	2,067	3,420
1990	28,769	17,427	5,815	2,090	3,436
1991	28,821	17,459	5,828	2,099	3,433
1992	29,015	17,595	5,865	2,112	3,442
1993	29,150	17,690	5,892	2,122	3,445
1994	29,168	17,701	5,897	2,127	3,441
1995	29,386	17,854	5,942	2,143	3,446
1996	29,477	17,925	5,957	2,150	3,444
1997	29,505	17,935	5,970	2,158	3,440
1998	29,494	17,926	5,970	2,163	3,434
1999	29,542	17,966	5,976	2,167	3,431
2000	29,704	18,094	6,000	2,173	3,435
2005	29,517	18,005	5,903	2,066	3,542
2010	31,633	19,296	6,327	2,214	3,796
2015	31,507	19,219	6,301	2,206	3,781

Source: Mountain West Research-North, Inc., 1982.

<sup>a</sup>Excluding the city of Sheridan.

Note: Details may not sum due to rounding.



experience with growth during the 1970s, if adequate resources are available (see Section 4.7.3.6), the decision-making mechanisms are in place to respond to community needs.

#### Changes in social organization

Continued population growth in Sheridan and the greater Sheridan area would result in some changes in social organization. However, the magnitude of the population increase and the period over which it is to occur suggest that changes in social organization would be slight, especially for the social and political dimensions. Because of Sheridan's position as a regional center, changes in economic organization may be greater than changes in other areas.

#### Diversity/complexity

Changes in diversity/complexity over the baseline period will continue but at a much slower pace than during the 1970-1980 period. Over the forecast period, the community will become further divided into social groupings, although probably along somewhat different lines than those that emerged in the 1970s. The importance and activity of special interest groups may remain stable, or even decline, while the intensity of the effort to develop and provide social action programs is likely to diminish as the pace of change slows, established programs become routine, and the community adjusts to the new economic and social patterns. Social differentiation, the process of categorizing people into distinct social groups, would continue. New social categories are likely to emerge, based on such groupings as occupation, age, residence, and perhaps recreational patterns. Residents will be increasingly inclined to view one another in terms of social characteristics rather than lineages.

Economic diversity/complexity, like social diversity, would continue to increase, not only from the increased population of the city but also from Sheridan's position as a regional center. This trend would be affected if Gillette emerged as a significant regional center, particularly if it provided services complementary to those available in Sheridan. Residents in Sheridan have already noted that Gillette's growth has had an effect in this regard.

The expansion of Sheridan's economy is expected to include chain stores, franchises, and extra-locally-based businesses that are attracted to the region by the expanded market. This would provide opportunities for area residents, both as managers and employees, and as consumers, while increasing competition among area businesses. Given Sheridan's location, it is unlikely that tourism will diminish in importance. Even at the end of the study period, Sheridan will be viewed as a "small rural western town in the mountains" by people from cities in the West or Midwest and as an attractive vacation spot.

The trend toward increased social differentiation would have implications for the political diversity/complexity of the community. As was true for the special interest groups in the 1970s, some of the new social groupings would become involved in political activities and the political process, following national trends, would become more formal and legalistic. Residential groups, for example, are likely to become involved in zoning issues and age groups may become powerful voting blocks. Occupational groups such as professionals, businessowners, or union members may enter into political issues as organized groups or even run their own candidates. It is likely that elected and appointed officials will represent an increasingly wide array of community residents.

The increased size of Sheridan and the immediate area will probably lead to an increased size of the city and county governments but not necessarily cause an increase in the complexity of the bureaucracy. There will mostly likely be a need for additional personnel to meet the additional demands on the governments, but because of past efforts for formalization and the slow rate of population growth, the governments will not need to add departments or layers in the bureaucracy. A possible exception to this may be the police department; it may need to move toward a more bureaucratic organization.

As stated earlier, these changes would come slowly, progressing in what is likely to be perceived as a natural sequence. Because of the relatively slow growth and lack of radical change in economic structure, the changes in social organization would proceed incrementally as the dynamic forces of the community adjust to one another. Sheridan's experience during the 1970s has prepared it well for these changes.

#### Stratification (distribution of resources, power and status)

It is in the stratification system that Sheridan is likely to experience the greatest change over the 1980-2015 period. As noted in Section 3.7.3.3, by 1983, political positions filled by appointment were being given to newcomers and even to recruited outsiders, but social status was still largely closed. Over the baseline period, it is likely that the status system will become more open. As the "old guards" age and pass away and the appointed governmental employees become more firmly linked into the informal networks of the community, the importance of a ranching background and longtime family ties will diminish, though they are not likely to disappear completely. As these criteria become less important, the old status system will gradually evolve into one based on different criteria, such as education, occupation, or wealth, for example. It is almost impossible to specify in advance what types of status criteria would actually emerge, but they are likely to be increasingly similar to national patterns and more open to attainment through achievement.

#### Outside linkages

As discussed in Section 3.6.3.3, Sheridan had increased its social, economic, and political linkages during the 1970s. This trend is expected to continue through the baseline period. Two forms of outside social linkages are expected to become especially important over the baseline period: linkages to friends outside the community and membership in voluntary organizations with outside linkages. Political and friendship ties between community leaders and state government officials will remain important.

As Sheridan and its immediate area grow and become more diverse and complex, fewer residents will expect to find all of their friends within the community. Newcomers to the community will maintain extensive and consequential outside linkages for some time after their arrival. Those who came to Sheridan during the 1970s will also very likely maintain these types of outside linkages. As local, informal, friendship networks become more difficult to establish and maintain, more residents are likely to turn to voluntary organizations, particularly local affiliates of national organizations. Through these organizations, residents would become members in national organizations which may facilitate their contact with members who live outside the communities. These organizations would serve to further expose the community to national issues and trends.

The urbanization of Sheridan's economy, with more chain and extra-locally controlled businesses, along with Sheridan's regionally central position, would mean an increase in outside economic linkages. This continuing urbanization of the economy, though occurring more slowly than in the 1970s, is expected to increase business competition, offer an increased variety of goods and services, provide more opportunities for local employment, and provide a setting likely to enhance additional economic diversification.

Although most residents are expected to enjoy the wider variety of businesses and consumer goods, many will be dismayed if the tenor of business relationships changes significantly and if residents lose the sense that Sheridan is "their" town.

For the community, no recent trend has been so important as that encouraging the linkages between communities such as Sheridan and the national political system (Warner 1974; Bradshaw, Andrews 1979). As shown in Section 3.6.3.3, Sheridan has established close and effective ties with outside governmental agencies, especially those that administer and distribute impact funds. Although it appears likely that such funds will be more difficult to obtain during the 1980s (at least), it is unlikely that community

ties to the state will deteriorate significantly, though new ones will be established as political priorities and mechanisms evolve. In the past, Sheridan's leaders have exhibited skill in establishing and maintaining effective political contacts. This tradition will probably not be allowed to elapse.

Sheridan is also likely to maintain good representation and a degree of influence at the state legislature. As decision-making and implementation become more complex, more people and organizations will be involved. Sheridan may elect to employ joint-powers projects and seek outside expertise for difficult problems to an increasing degree.

The pervasive influence of outside linkages (social, economic, or political) may lessen intracommunity integration. At the same time, they also make for greater integration of the community with the state and the national society. The trend toward increasingly active outside linkages that occurred during the 1970s and that is likely to continue over the baseline period will lead Sheridan to become less isolated and more integrated and tied to the national society.

### Integration

The changes in diversity/complexity and outside linkages described earlier will directly affect community integration. It is expected that residents will become integrated into a portion of the overall social structure of the community. The size and diversity of the area will continue to make it increasingly difficult for residents to define a single, coherent, "corporate" community as residents are unable to maintain contact and familiarity with all members of the community. Nevertheless, the slower pace of growth will impart a sense of stability and coherence that was shaken by the rapid growth of the 1970s.

As Sheridan gets larger, and as the community becomes more differentiated into social groupings, membership in these groupings is likely to become increasingly important. These groupings would be seen as the integrative mechanism, rather than the community as a whole. Given the generally open economic and political stratification system, and that social affiliations are not formed on the basis of class (or consistent clusters of personal attributes), these groupings are not likely to be rigid, and individuals are likely to claim membership in more than one. As a result, social integration would be maintained but in a more fragmentary way than in the pre-1970 period.

Full political integration will not be easy to achieve over the forecast period simply because there will be more people and groups within the community with diverse interests. This increased diversity, along with the need to conform with state and federal regulations, means that not everyone will be satisfied with all decisions. The trend of the 1970s toward a decision-making process based on bargaining and negotiation should continue, encouraged by the increasing complexity of decisions as the community becomes more thoroughly linked with outside agencies and institutions.

### Perceptions of the community

Change is, almost by definition, the nature of modern urban society. From 1970 to 2015, Sheridan is expected to experience significant changes, and it is difficult to forecast how people will perceive their community over such a time span.

Overall, it is anticipated that Sheridan will continue to be seen as a good place in which to live. The community will still be relatively small, (19,219 persons), and the aesthetic characteristics of the location probably will continue to be considered attractive. Since the changes that are expected to occur after 1980 will be moderate, and will generally conform to residents' values for economic development and improved availability of services, they will probably not be seen as reducing the quality of life. Overall perceptions of life in Sheridan will be increasingly influenced by its characteristics relative to the national society, as communication and residential mobility make such comparisons more immediate. 41-

though no methods exist by which patterns in social behavior such as crime and divorce can be foreseen over the long term, it is anticipated that Sheridan residents will continue to feel that they belong to an attractive and relatively prosperous, stable, friendly, and safe community. Trends in economic and other material indicators of well-being are discussed in other sections.

Based on existing expressions of values, most area residents will see the continued growth as positive, especially since its pace will be slower and much more controlled than during the 1970s.

Finally, although the community is expected to maintain its "western" heritage and conservatism toward government, the ultraconservatism of the earlier period is expected to be substantially moderated by the end of the baseline period. The influences of the larger society, combined with the demographic transition of the community, would reduce the influence of the conservative philosophy.

#### 4.7.3.4 Housing

As shown in Table 4.7.3.4-1, baseline housing demand for the city of Sheridan is forecast to grow from 6,689 units in 1980, to 9,278 units in 2000, a 39 percent, 2,589 unit increase. Similarly, baseline housing demand in the greater Sheridan area, excluding the city of Sheridan is forecast to increase from 1,602 units in 1980 to 2,197 units in 2000, a 595 unit, 37 percent increase.

After 2000, the rate of growth in housing demand in both areas is forecast to decrease. Housing demand in the city of Sheridan is expected to grow from 9,278 units in 2000 to 9,840 units in 2015, an increase of 6 percent. In the greater Sheridan area, demand is forecast to rise from 2,197 units in 2000 to 2,329 units in 2015, an increase of 5 percent. As noted earlier, these increases in housing demand are well within the capacity of local builders.

#### 4.7.3.5 Facilities and Services

The public facilities and services discussed for Sheridan are grouped as follows: general government, engineering, public works, cemetery, and sanitation, police, fire, and parks and recreation.

##### General government

The city hall, constructed in 1910, contains 14,775 sq. ft.; there is no room for expansion at its present location. Additional general administrative space is projected for 1985, 1994 and 2002 as shown in Table 4.7.3.5-1. Table 4.7.3.5-2 shows personnel requirements for general government, rising from 72 people in 1982 to 89 by 2015. Using a standard of 800 sq. ft. per 1,000 population (CITF), reveals that the structure's space is adequate to serve the projected baseline population until after the year 2000. By 2015, an additional space requirement of 1,325 sq. ft. may be desirable.

##### Engineering

The city engineering department oversees the engineering and planning functions, utilities, and the street functions. The sewer system is being expanded in 1983 to serve a population of 29,000 persons; this exceeds the baseline population projection.

The water system's capacity is about 10,000,000 gallons; it reaches capacity during the peak summer months. However, the current planning standard of 200 gpcpd indicates a need for a capacity of 3,159,000 gallons, increasing to 4,024,000 by 2015. Depending on where growth is allowed to occur, the water system

TABLE 4.7.3.4-1

Housing Demand Forecast  
Baseline Scenario  
Sheridan County Allocation Areas  
(Housing Units)

Year	Sheridan County	Sheridan City	Greater Sheridan Area <sup>a</sup>	Ranchester- Dayton Area	Rest of County
1980	10,457	6,689	1,602	686	1,480
1981	10,959	6,987	1,684	707	1,579
1982	11,041	7,039	1,702	715	1,584
1983	11,135	7,096	1,722	725	1,590
1984	11,227	7,151	1,742	735	1,598
1985	11,545	7,383	1,785	758	1,617
1986	11,823	7,591	1,825	772	1,633
1987	11,976	7,693	1,855	784	1,642
1988	12,187	7,838	1,890	798	1,660
1989	12,397	7,979	1,927	813	1,677
1990	12,637	8,151	1,959	829	1,697
1991	12,760	8,236	1,978	839	1,706
1992	12,940	8,363	2,006	849	1,720
1993	13,099	8,476	2,030	859	1,732
1994	13,232	8,567	2,051	869	1,744
1995	13,457	8,727	2,085	883	1,761
1996	13,629	8,850	2,110	893	1,775
1997	13,726	8,917	2,126	901	1,781
1998	13,860	9,009	2,146	911	1,793
1999	14,019	9,122	2,169	921	1,806
2000	14,232	9,278	2,197	932	1,824
2005	14,142	9,219	2,183	924	1,816
2010	15,156	9,880	2,338	991	1,947
2015	15,095	9,840	2,329	987	1,939

Source: Mountain West Research-North, Inc., 1982.

<sup>a</sup>Excluding the city of Sheridan.

Note: Details may not sum due to rounding.

TABLE 4.7.3.5-1

Summary of Facility Requirements for City of Sheridan  
Baseline Projection  
1983-2004

Year	Facility	Change in Capacity	Capital Outlay (1982 \$000)
1983	Shop Space (sq. ft.)	3,600 <sup>a</sup>	\$144 <sup>a</sup>
1983	Parks (acres)	39.7	1,031
1983	Fire Station (sq. ft.)	10,000 <sup>a</sup>	938 <sup>a</sup>
1983	Sewage Treatment (gals.)	2,300,000 <sup>a</sup>	10,400 <sup>a</sup>
1985	Gen. Admin. Space (sq. ft.)	1,528	107 <sup>b</sup>
1985	Roads	NA	75 <sup>c</sup>
1985	Roads (miles)	6.1	3,437 <sup>b</sup>
1986	Water Storage (gals.)	780,005	335 <sup>b</sup>
1986	Water Treatment (gals.)	780,005	374 <sup>b</sup>
1990	Parks	7.1	185 <sup>b</sup>
1994	Gen. Admin. Space	738	52 <sup>b</sup>
1994	Roads	3.39	1,922 <sup>b</sup>
1997	Parks	8.0	209 <sup>b</sup>
2000	Water Treatment	10,000,000 <sup>d</sup>	5,000 <sup>d</sup>
2000	Water Storage	10,000,000 <sup>d</sup>	2,000 <sup>d</sup>
2002	Gen. Admin. Space	1,346	94 <sup>b</sup>
2003	Roads	6.3	3,597 <sup>b</sup>
2004	Parks	7.0	181 <sup>b</sup>

Source: B.Y. Analytics, 1983.

<sup>a</sup>Planned expansion.

<sup>b</sup>Occurs in previous year.

<sup>c</sup>Planned expenditure for general plan.

<sup>d</sup>Expansion planned when population is 15 percent greater than current population.

TABLE 4.7.3.5-2  
 Personnel and Law Enforcement Vehicle Requirements  
 for City of Sheridan  
 Baseline Scenario  
 1982-2015

Year	Government Personnel	Firefighting Personnel (FTE)	Law Enforcement Vehicles <sup>a</sup>
1982	72	18	11
1983	70	17	32
1984	70	17	32
1985	72	18	33
1990	77	19	35
1995	79	20	36
2000	80	20	36
2005	82	21	37
2010	89	22	40
2015	89	22	40

Source: B.Y. Analytics, 1983.

<sup>a</sup>See text for projection of police officers.

may require pump stations, additional treatment, and additional storage capacity. An additional source of water would also have to be identified.

The city's streets are generally in good condition. The maintenance program is being expanded using severance tax receipts. Drainage is a problem in Sheridan; a drainage study is planned for 1984 to develop solutions to the multijurisdictional drainage problem.

The city's 9,600-sq. ft. shop is being expanded in 1983 by an additional 3,600 sq. ft. for a total of 13,200 sq. ft. CITF standards of 1,500 sq. ft. per 1,000 population indicate a need for 30,200 sq. ft. of shop space by 2015.

The city's solid waste system is being expanded and updated. An additional 125 acres for landfill was recently purchased. Equipment is mostly new and in good condition, and the collection system is being automated. There are no problems with expanding services to accommodate the projected baseline population.

The existing forty-acre cemetery was recently expanded by thirty-five acres, plus seventeen lots, and is considered by local officials to be adequate for many years to come.

#### Police

The city's police department is housed with the county's sheriff department in a new, 1982 facility. Both the administrative space and jail cells are considered more than adequate to handle the baseline population through 2015. Using the current planning ratio of two policemen per 1,000 population, about ten additional officers will be required by 2015, raising the number of police to about 36.

#### Fire

A new 10,000-sq. ft. fire station is being constructed in Sheridan at a cost of \$938,000. Added to the existing 4,284 sq. ft. at city hall, the total fire space is 14,284 sq. ft. The national planning standard is 1,000 sq. ft. per 1,000 population, which results in a projected need for 20,000 sq. ft. in 2015.

Sheridan is slightly below the national planning standard. The city owns a site for another fire station, however, should expansion become desirable. Additionally, the county has a fire district located at the nearby airport, although a mutual aid agreement is not in effect. The fire department is supported by eighteen full-time personnel and fifteen part-time, "on-call" personnel for emergencies.

#### Parks and recreation

There are about 124 acres of park land, excluding the golf course, that adequately serve Sheridan's population. The park and recreation department lacks indoor facilities but does use some school facilities. A YMCA with excellent programs and indoor facilities is also located in town.

Complete development of the existing 124 acres and the acreage in the golf course (estimated at over 100 acres) gives Sheridan a park land acreage to 1,000 population ratio of over 14, the national standard (National Recreation and Park Association) suggests 10 acres per 1,000 population. The existing acreage is considered adequate to meet the projected needs throughout the baseline projection.

Sheridan is considering building an indoor recreation complex. The national standard for indoor recreation facilities is one per 125,000 population. In order not to duplicate the YMCA's facilities, the



city should pursue greater use of publicly owned school facilities for recreation purposes, conduct a study that would help determine the contents of an indoor facility, and project costs and revenues associated with an indoor recreation facility.

#### 4.7.3.6 Fiscal

Table 4.7.3.6-1 shows the baseline projection fiscal summary for the City of Sheridan. Detailed projections of revenues and expenditures are presented in Appendix C.

The data contained in Table 4.7.3.6-1 reveal that the annual fiscal balances would be negative in the years for which major capital outlays are projected, and positive in all other years. The negative annual balances projected for 1983, 1984, 1985 and 200 result from capital outlay projections for roads, fire station, parks, sewage treatment, and water treatment and storage as described in Section 4.7.3.5.

In the absence of major, one-time capital outlays, the projected operating revenue exceeds operating expenditures. Between 1990 and 1995, the projected annual surplus revenue would offset the negative balances in 1983, 1984 and 1985 to produce an positive cumulative balance. A major factor of the surplus revenue position is the city's dependence on elastic revenue sources, such as sales taxes, to finance growth.

#### 4.7.4 Ranchester, Dayton, and Area

##### 4.7.4.1 Introduction

This section presents the baseline forecasts for Ranchester, Dayton, and the surrounding area. Section 4.7.4.2 presents the population and economic forecasts. Section 4.7.4.3 discusses social life in the Ranchester-Dayton area under baseline conditions. The housing impact forecasts are presented in Section 4.7.4.4. Facilities/services and fiscal forecasts are presented in sections 4.7.4.5 and 4.7.4.6, respectively.

##### 4.7.4.2 Population and Economy

As shown in Table 4.7.3.2-1, the Ranchester-Dayton area's baseline population is forecast to grow from 1,841 people in 1980 to 2,090 people in 1990, an increase of 14 percent. The area's population is then forecast to grow more slowly, increasing by 4 percent during the 1990s and by 2 percent between 2000 and 2010. The area's forecast population in 2015 of 2,206 people represents a 20 percent increase over the actual 1980 population level.

As noted in Appendix B, the Ranchester-Dayton area's employment by place of residence is forecast to decrease slightly between 1980 and 1983 but then to increase steadily through 2000, when the employment level of 1,049 workers would be 18 percent above the 1980 level of 889 workers.

##### 4.7.4.3 Social Life and Cultural Diversity

The projected population growth to the year 2015 (by five-year intervals) is shown in Table 4.7.3.2-1. As can be seen, the growth is quite moderate. For Ranchester and Dayton together, the average increase over the entire period is about 10 people per year. As a result of this increase in population, it is anticipated that facilities and services will continue to be expanded and updated, and that the

TABLE 4.7.3.6-1

Fiscal Summary for City of Sheridan  
Baseline Scenario  
1982-2015  
1982 (\$'000)

Fiscal Summary	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015
Revenues Total	9,173	7,116	7,133	7,271	7,399	7,461	7,522	7,568	7,638	7,780	7,859	8,069	8,558	8,532
Expenditures														
O & M	5,389	5,273	5,290	5,429	5,557	5,619	5,681	5,727	5,797	5,939	6,019	6,230	6,720	6,694
Capital	3,664	3,400	4,357	1,662	845	845	845	1,030	845	845	7,845	845	845	845
Debt Payment	162	292	292	292	162	162	162	162	162					
Total	9,215	8,966	9,939	7,382	6,564	6,626	6,688	6,918	6,804	6,784	13,864	7,075	7,565	7,539
Fiscal Balance														
Annual	-1,850	-2,805	-112	835	835	835	834	650	834	996	-6,005	995	993	993
Cumulative	-1,850	-4,656	-4,767	-3,932	-3,098	-3,098	-2,263	-1,614	-780	1,577	-655	447	NF	NF

Source: Briscoe, Maphis, Murray and Lamont, 1983.

Notes: Details may not sum due to rounding.

NF = not forecast.

Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.

The large net deficits shown in this table result from the methodology used (see Section 2.3.4....). In actuality, such deficits would not be allowed to occur -- government officials would either find additional sources of revenues and/or reduce expenditures.

communities' residents will experience greater access to these types of amenities over the forecast period (see Section 4.7.4.5).

#### Changes in social organization

Diversity/complexity. The additional population in the two communities will be sufficient to cause some increase in diversity/complexity. The communities will reach the size where distinct social groupings could begin to emerge based on spatial aspects (such as residential location), length of residence (by not integrating so readily the incoming population), or age. It is also likely that new voluntary organizations will be established that will make claims on people's time and resources and that will reinforce the development of more distinct social groupings. Residents who join such organizations would have a larger role in the community, and more expectations would be placed upon them.

The population growth is expected to be sufficient for some new and different kinds of businesses to succeed in the community. It may be possible to sustain such establishments as small clothing stores or hairdressers. However, the communities' relationship to Sheridan and Billings will continue to inhibit local commercial development.

Two separate effects on the political structure are likely to be observed. First, the city governments are likely to continue to become more powerful and more active. New ordinances controlling growth and regulating more daily activities will probably be implemented; zoning will become more refined and important as developers want to establish new subdivisions and businesses. A second change that is likely to occur will be for the younger aged population to exercise their power by electing younger people to political positions. This transition would occur much as a contest between young and old than as a contest between old-timers and newcomers. As the younger people get elected, there is likely to be a change in philosophy about the role of government. This change in leadership would become evident during the mid-term. By the end of the study period, a second generational transition will probably have occurred or be under way, as the leaders emerging in the 1980 retire or are replaced.

Stratification (distribution of resources, power, and status). As the diversity/complexity of Ranchester and Dayton changes, there will be concomitant changes in the stratification system. As it becomes harder to "know everybody in town," the newcomers will not all be accorded equivalent status as they move in. Residents are likely to begin to become aware of status criteria and social groupings that were generally not recognized in 1980.

The younger people are likely to begin to claim leadership positions and the rights and status that pertain to them. Overall, the status of younger persons is likely to increase in the community, although because of national trends toward the aging of the population, the elderly will also be viewed with more respect and less stereotyping. These simultaneous trends would serve to increase the dynamism of community interactions and political control and are likely to widen the base for active participation in community affairs and decisions.

How the overall status system will change depends upon how the new social groupings are ranked. It is almost impossible to predict how such interactions will occur.

Outside linkages. As newcomers move into the communities and are more slowly integrated because of the larger community size, the linkages to friends and relatives outside the community will remain important sources of reference and support. The longer outside social linkages are maintained, and the more important they are, the less quickly and completely the new people will be absorbed by the community. Reciprocally, as integration into the community is delayed, continued orientation and allegiance to out-

side linkages will be encouraged. These linkages will have more influence upon newcomer attitudes and behaviors than upon local expectations. Local informal social control, then, will have much less influence on these newcomers than on those who become more fully integrated. This, in turn, will increase the need for the development of more formal mechanisms to provide social controls.

More outside social linkages are likely to be created as new voluntary associations are formed, especially those that are local affiliates of national organizations. Another source of such types of linkages will be membership by residents in voluntary associations located in Sheridan and residents who look to Sheridan for some of their social activities.

Patterns of economic linkage are expected to remain relatively unchanged over the forecast period, barring major alterations of national communication and transportation systems. The two communities are expected to remain heavily dependent upon tourism, hunting, and coal mining, all of which result in strong and ongoing contact with nonlocal clients and organizations. As businesses enter and expand in the greater Sheridan economy, entrepreneurs and managers will have to deal with an increasing number of outside linkages. Ties with Sheridan will continue to be very strong.

One consequence of the prospect of continued development of the area's coal has been and will continue to be the increased importance of large corporations (Consolidation Coal, Peter Kiewit and Sons, NERCO) as employers and as local business interests (note the establishment of regional offices in Sheridan). Another will be the need to work out the relationship between union and nonunion workers. These processes will tie the communities of Dayton and Ranchester even closer to the national economy and businesses.

There is little doubt that political linkages between the community and the outside will increase and become more diffuse, though specific strong ties will undoubtedly be maintained. The communities will continue to be interested in and affected by the state legislature and will attempt to maintain ties to persons influential in state government. It also appears likely that the relationship between Ranchester, Dayton, and Sheridan will become closer over the forecast period. It was reported that political ties between Ranchester, Dayton, and Sheridan are currently limited. As the needs of the two smaller communities increase, so will the linkages between the communities and the county government. The need to work together to solve common problems may serve to increase effective policy-making and administrative relationships. The extent and tenor of these linkages will depend on the leadership of the communities and upon the circumstances under which they are established.

In summary, the effect of the changes forecast for the baseline period will be to draw Dayton and Ranchester further into mainstream America.

Integration (coordination and cooperation). The expected cumulative effects of more diversity/complexity, more outside linkages, and a change in stratification will result in lower levels of community integration for Ranchester and Dayton than they experienced in the pre-1970 period or would experience with no additional growth.

In the future, social integration is not expected to be as encompassing as it has been in the past. The community will become divided, first along fuzzy lines, but gradually along more clearly established delineations. Specific criteria are likely to become more important for placing people in the community and for determining or demonstrating status.

Paradoxically, there may be more economic coordination as local businesses become more conscious of the possibility of local collective action. Business people may come to see stronger local organization as a necessity.

Political coordination and cooperation will probably become more complex, time consuming, and difficult. Heightened interest from residents representing an increasingly diverse range of interests and perspectives will probably occur causing decision-making -- and decision-makers -- to become more political and more adept at handling and controlling controversy. Political action is likely to include a greater emphasis on bargaining and compromise between the special interests than before. The city governments will exercise more power and control, but local governance will also be more difficult.

Perceptions of the community. It is anticipated that many longtime residents of Ranchester and Dayton will not like the changes that the forecast growth will bring to their communities. The sense of a single community -- one large family -- will diminish. Even for those who are generally supportive of growth, the changes may not be all that welcome. Informality will be diminished almost certainly over the pre-1970 levels (or the levels reestablished if no further growth occurred), as will the generalized trust between neighbors, friendliness, and the ideal of social equalitarianism. The explicit or conscious social rankings that are forecast to emerge will be uncomfortable for many. For most residents, the optimum size of the population will have been exceeded and the two communities will no longer be the community they knew "back then."

#### 4.7.4.4 Housing

As shown in Table 4.7.3.4-1, baseline housing demand in the Ranchester-Dayton area is forecast to increase from 686 units in 1980 to 932 units in 2000, a 36 percent, 246 unit increase. After the year 2000, housing demand is forecast to increase more slowly, rising to 987 units by 2015, a 5.9 percent increase over the 2000 level.

#### 4.7.4.5 Facilities/Services

This section presents a summary of the baseline projections for capital facility requirements for the towns of Ranchester and Dayton. Only those changes in facility requirements that are significant are discussed here; however, complete projections of facility demand, changes in capacity, and capital outlay are contained in Appendix C.

##### Ranchester

In the baseline scenario, major capital additions are projected for the sewage collection and treatment system. A planned expansion is projected to add 168,000 gallons of capacity in 1983 at a cost of \$115,000. However, based on the planning standards used in the model, an additional 38,362 gallons would be required (in addition to the 1983 planned expansion) to meet demand through 2015. In 1984, one-half acre of developed park space would be needed at a cost of \$15,000.

All other facilities are projected as adequate to meet demand through 2015. Based on existing standards, there would be no need for additional government personnel.

##### Dayton

Table 4.7.4.5-1 shows the summary of facility requirements for Dayton. To provide adequate services, as indicated in Table 4.7.4.5-1, a major addition to water storage capacity (325,000 gallons) is projected for 1983. Similarly, small additions are projected for general administrative space, roads, parks, and sewage collection and treatment systems.

TABLE 4.7.4.5-1

Summary of Facility Requirements for Dayton  
Baseline Projection  
1983, 1984

Year	Facility	Change in Capacity	Capital Outlay (1982 \$000)
1983	General Administration Space (sq. ft.)	377	26
1983	Water Storage (gals.)	325,044	140
1984	Roads Collector (miles)	0.127	61
1984	Roads Arterial (miles)	0.047	33
1984	Parks (acres)	1.54	40
1984	Sewage Treatment (gals.)	17,504	22
1984	Sewage Collection (gals.)	17,504	36

Source: B.Y. Analytics, 1983.

The town currently employs three persons; no additional government personnel requirements are projected for the baseline scenario.

#### 4.7.4.6 Fiscal

This section presents the baseline projections of fiscal conditions for the towns of Ranchester and Dayton. Only the fiscal balance summaries are presented for each jurisdiction; however, complete projections of revenues and expenditures are contained in Appendix C.

##### Ranchester

Table 4.7.4.6-1 shows the baseline projection fiscal summary for Ranchester. As indicated in the table, the annual fiscal balance is highly negative in 1983 (due to base capital outlay for the sewage system), remains slightly negative in most years through 1990, and then becomes positive for the remainder of the projection period after the debt service is paid. The nearly balanced annual budget beyond 1993 is the result of positive net fiscal balances in the enterprise activities (water and sewer), offsetting a projected negative annual balance for the general fund. Except for some problems related to proposed near-term capital investments, the financial picture for the town looks manageable as it is likely that outside assistance or other financial support for the major capital outlay will be acquired.

##### Dayton

Table 4.7.4.6-2 shows the fiscal summary for Dayton. Large negative annual balances are projected for 1983 and 1984, due to capital outlays for water storage, roads, parks, sewage treatment and collection, and general administrative space. Beginning in 1985, the annual negative balance is expected to be relatively small and declines to only \$6,000 by 2005.

#### 4.7.5 Rest of County

##### 4.7.5.1 Introduction

This section presents the baseline forecasts for the rest of Sheridan County. Section 4.7.5.2 presents the population and economic forecasts for the area. Because the proposed mines would not have significant population impacts in the area, detailed social, housing, facilities/services, and fiscal forecasts are not presented here.

##### 4.7.5.2 Population and Economy

As shown in Table 4.7.3.2-1, the rest of Sheridan County's baseline population is forecast to grow from 3,042 people in 1980 to 3,436 people in 1990, an increase of 13 percent. The area's population is then forecast to grow more slowly, remaining stable during the 1990s, and then growing by 7 percent between 2000 and 2010. The area's forecast population in 2015 of 3,781 people represents a 24 percent increase over the actual 1980 population level.

As noted in Appendix B, employment in the rest of Sheridan County increases steadily from 1,762 workers in 1980 to 1,947 workers in 2000, an increase of 10 percent.

TABLE 4.7.4.6-1

Fiscal Summary for Town of Rancho  
Baseline Projection  
1982-2015  
(1982 \$000)

Fiscal Summary	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015
Revenues Total	960	399	401	405	407	410	412	414	416	421	424	398	408	408
Expenditures														
O & M	359	346	348	354	357	360	363	365	368	375	376	345	358	357
Capital	541	242	18	2							2			
Debt Payment	60	60	60	60	60	60	60	60	60					
Total	960	648	426	416	417	402	423	425	428	375	378	345	358	357
Fiscal Balance														
Annual	-249	-249	-25	-11	-10	-8	-11	-11	-12	46	46	53	50	51
Cumulative			-274	-285	-295	-287	-298	-309	-321	-86	142	383	NF	NF

Source: B.Y. Analytics, 1983.

Notes: Details may not sum due to rounding.

NF = not forecast.

Because of limitations in the size of the computer model used to project population, it was possible to make annual projections through 2005. Thereafter only the single years 2010 and 2015 were projected. Therefore, it was not possible to compute cumulative fiscal results for years following 2005.

The large net deficits shown in this table result from the methodology used (see Section 2.3.4 ). In actuality, such deficits would not be allowed to occur -- government officials would either find additional sources of revenues and/or reduce expenditures.



TABLE 4.7.4.6-2

Fiscal Summary for Dayton  
Baseline Projection  
1982-2015  
(1982 \$000)

Fiscal Summary	1982	1983	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015
Revenues Total	567	302	304	308	311	313	315	317	320	325	328	301	312	311
Expenditures														
U & M	444	205	208	200	202	204	206	208	210	216	208	182	192	192
Capital	123	269	212	125	125	125	125	127	125	125	130	125	125	125
Total	567	474	420	325	327	329	331	336	335	341	338	307	317	317
Fiscal Balance														
Annual	-172	-172	-116	-17	-17	-15	-15	-18	-15	-16	-10	-6	-6	-6
Cumulative			-288	-305	-322	-337	-352	-370	-385	-483	-544	-572	NF	NF

Source: B.V. Analytics, 1983.

Note: NF = not forecast.





